

IN THE CIRCUIT COURT OF  
THE ELEVENTH JUDICIAL CIRCUIT  
IN AND FOR DADE COUNTY, FLORIDA  
GENERAL JURISDICTION DIVISION

NORMA R. BROIN, et al.,  
Plaintiffs,

vs.

CASE NO. 91-49738  
CA 22

PHILIP MORRIS COMPANIES,  
INC., et al.,  
Defendants.

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TRIAL  
VOLUME 56

TRANSCRIPT OF PROCEEDINGS in the  
above-styled cause before the Honorable Robert Paul  
Kaye, at the Dade County Courthouse, 73 West Flagler  
Street, Miami, Florida, on Tuesday, July 22, 1997,  
at 1:40 p.m.

APPEARANCES:

STANLEY M. ROSENBLATT, ESQ.

SUSAN ROSENBLATT, ESQ.

On behalf of the Plaintiffs

HUGH R. WHITING, ESQ.

JONES DAY REAVIS & POGUE

On behalf of R.J. Reynolds

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EDWARD MOSS, ESQ.  
ANDERSON MOSS SHEROUSE & PETROS  
On behalf of Brown & Williamson  
DAVID L. ROSS, ESQ.  
GREENBERG TRAUIG HOFFMAN LIPOFF ROSEN & QUENTEL  
On behalf of Lorillard  
DAVID HARDY, ESQ.  
and WALTER COFER, ESQ.  
MARTHA WARREN, ESQ.  
SHOOK HARDY & BACON  
On behalf of Lorillard and Philip Morris  
KELLY ANNE LUTHER, ESQ.  
CLARKE SILVERGLATE WILLIAMS & MONTGOMERY  
On behalf of Liggett and Brooke Groups  
MARIE SANTACROCE, ESQ.  
KASOWITZ BENSON TORRES & FRIEDMAN  
On behalf of Liggett and Brooke Groups  
MICHAEL RUSS, ESQ.  
KING & SPALDING  
On behalf of Brown & Williamson and American  
Tobacco Company  
JOSEPH R. MOODHE, ESQ.  
DEBEVOISE & PLIMPTON  
On behalf of The Council for Tobacco Research  
JOSE MARTINEZ, ESQ.  
MARTINEZ & GUTIERREZ  
On behalf of Philip Morris  
JEFFREY FURR, ESQ.  
WOMBLE & CARLYLE  
On behalf of R.J. Reynolds  
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## I N D E X

WITNESS	DIRECT	CROSS
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KATHERINE HAMMOND		.
(By Mr. Rosenblatt)	6975, 7124	
(By Mr. Furr)		7036

## EXHIBITS

DEFENDANT'S	PAGE
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1 THE COURT: I understand we have a  
2 motion.

3 MR. FURR: Yes, we do. We have a  
4 problem stemming from Dr. Hammond's deposition this  
5 morning. It's actually one problem with two parts.

6 In the evolution of our right to take  
7 Dr. Hammond's deposition, Your Honor may recall we  
8 argued yesterday as to the basis and the need for  
9 taking her deposition, and I've got the transcript  
10 from yesterday, and at that time Mrs. Rosenblatt at  
11 Page 6773 stated that "She is at the University of  
12 California and she has not done any further studies  
13 or said at the time of her deposition that she was  
14 going to do some type of analysis. She did not do  
15 that. So, therefore, there would be no need in the  
16 context of taking a further deposition."

17 On Page 6777, Mrs. Rosenblatt stated the  
18 purpose for redeposing her is she talked about some  
19 type of statistical analysis that she was going to  
20 do, and she never--she didn't feel it was necessary;  
21 she didn't have the time; she didn't do it; she is  
22 basically relying on her basic research and she  
23 testified before OSHA, and all that was gotten into.

24 We did depose Dr. Hammond this morning and  
25 we found two areas where, in fact, she had done some

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1 work that we had not been put on notice of.

2 First, Dr. Hammond did what she is now  
3 describing as a qualitative retrospective exposure  
4 assessment. Honestly, we are not quite sure what  
5 she did yet. She claimed on her deposition that  
6 this, in fact, was only a refinement of her previous  
7 work with respect to historical exposure to ETS in  
8 the airline cabin, but despite claiming that, the  
9 following questions and answers occurred this  
10 morning during the deposition:

11 "Now, Dr. Hammond, I just want to review a  
12 few things we already discussed this morning.

13 "Since your May 27, 1997 deposition, you  
14 have looked at data regarding passenger loads."

15 "Correct."

16 "And since your May 27, 1997 deposition, you  
17 have looked at data regarding smoking rates."

18 "Yes."

19 "And since your May 27, 1977 deposition, you  
20 have looked at data regarding breathing rates."

21 "Yes."

22 "And all of the data we've just talked  
23 about, passenger loads, smoking rates, and breathing  
24 rates, have helped you form your opinions in this  
25 case?"

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1 "Yes."

2 And we can verify that, in fact, she had not  
3 looked at those by referencing the transcript from  
4 the May 27 deposition, but the position we are in,  
5 Your Honor, is that she, in fact, whether she calls  
6 it refinement or new work, she obtained additional  
7 data; that she applied her judgment to that  
8 information to refine her opinion.

9 During the deposition she said that--in her  
10 May 27 deposition she said that she believed that  
11 historically rate exposures were probably higher.  
12 We know she said that. We were prepared to deal  
13 with it on that level. She now has done some  
14 further analysis that she claims allows her to  
15 testify that, in fact, the historical exposure rates  
16 in the 1970s were twice as high as they would have  
17 been in the late '80s when the studies that actually  
18 were conducted and obtained data on the issue were  
19 done. And we really have not had an opportunity to  
20 prepare to meet that evidence, and we would request  
21 that she not be allowed to offer that opinion today.  
22 That's part one.

23 She also provided to us this morning a  
24 five-page memorandum dated July 15, 1997 to an  
25 Edward J. Westbrook, whom I understand to be an

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1 attorney with the Ness Motley firm involved in other  
2 litigation against the tobacco industry, and in this  
3 memorandum she summarizes her review of a deposition  
4 that was taken in this case on May 15 of this year,  
5 two weeks prior to her original deposition in this  
6 case.

7 She was asked questions about the subject  
8 matter that was addressed in the May 15 deposition  
9 during her May 27 deposition and made no reference  
10 and had no discussion or opinions based upon the  
11 deposition on May 15 of Dr. Morgan, a former Philip  
12 Morris employee, and she gives us this memorandum  
13 today which she stated that she had just provided to  
14 the Rosenblatts this morning, and so again, this is  
15 a topic on which we would ask Dr. Hammond not be  
16 permitted to testify today.

17 MS. ROSENBLATT: We are not having  
18 Dr. Hammond testify as to what she did from Ness  
19 Motley in the attorney general cases.

20 This morning it came up. I asked, "Did you  
21 ever hear of Dr. Morgan?" And she said, "Well, I  
22 actually did something, but before I can share it  
23 with you, I have to call," and a call was made by  
24 someone in our staff to the Ness Motley law firm to  
25 find out whether, in fact, she could share what she

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1 did.

2           So, when she showed it to us, I said, "In  
3 the spirit of full disclosure and, well, in ten  
4 minutes you're going to give your deposition, give  
5 it to them. We are not going to get into that  
6 today, but since you've done it, I don't want to be  
7 in a position where you haven't given them a hundred  
8 percent. They may want to cross examine you. If  
9 the Judge let's them, I can't help it. You did  
10 this. We didn't know about it. We didn't hire you  
11 for it."

12           It is relevant knowledge. It has to do with  
13 nitrosamines, and that's the background of that. I  
14 didn't get a chance. This is the first deposition.  
15 This is one this morning for a couple of hours. I  
16 haven't read it. I skimmed it just to go through  
17 very quickly, so as to No. 2, we are not  
18 intending--unless the defendants wish to cross  
19 examine her on it. It's helpful to us, but we got  
20 this this morning. We hadn't had a chance to review  
21 it, and it's not something we asked her to do, and  
22 she's doing it unbeknownst to us. Apparently, she  
23 had been retained in connection with the attorneys  
24 general and other litigation, tobacco.

25           THE COURT: Now you've got me confused.

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1 MS. ROSENBLATT: She came in with  
2 reports.

3 THE COURT: Which one are you talking  
4 about? She did some additional studies he said.

5 MS. ROSENBLATT: Nothing to do with  
6 what we asked her.

7 THE COURT: Are you giving that  
8 testimony?

9 MS. ROSENBLATT: We are not. That has  
10 to do with Morgan, the nitrosamines and measuring  
11 them. She went ahead in her laboratory and measured  
12 and finds out the numbers are higher.

13 THE COURT: All right. If you're not  
14 going to get into it---

15 MS. ROSENBLATT: We're not going to go  
16 into it.

17 THE COURT: So be it. That's a dead  
18 issue.

19 MS. ROSENBLATT: Right.

20 THE COURT: If they want to open the  
21 door, that's their department. This letter or this  
22 summary or whatever he's talking about here,  
23 whatever that is, you're not going to get into that  
24 either?

25 MS. ROSENBLATT: We are not going to.

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1 THE COURT: So be it.

2 MS. ROSENBLATT: I felt it was prudent  
3 to give it to them, even though it wasn't for us,  
4 simply to say that we have it.

5 THE COURT: It's not an issue anymore  
6 unless they raise it or open the door to it.

7 MS. ROSENBLATT: Okay. The first part  
8 we vehemently oppose. During this deposition---

9 THE COURT: That's what I thought we  
10 were talking about.

11 MS. ROSENBLATT: No. The first issue.  
12 The second issue I dealt with first. The second  
13 issue had to do with the report that she represented  
14 having to do with Dr. Morgan and the nitrosamines.

15 THE COURT: No. I thought the first  
16 issue, there is a first research--

17 MS. ROSENBLATT: The first research---

18 THE COURT: --they brought up, okay,  
19 which is apparently she's now saying that whatever  
20 the levels are were twice as high and they objected  
21 to it.

22 MS. ROSENBLATT: No.

23 THE COURT: That's the issue that we  
24 are talking about right now.

25 MS. ROSENBLATT: Yes. The issue I

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1 addressed first had to do with the test of  
2 nitrosamines and the five-page report.

3 THE COURT: That's out.

4 MS. ROSENBLATT: That's out. That's  
5 why I wanted to deal with it because it's a moot  
6 issue.

7 THE COURT: Let's talk about the other  
8 one.

9 MS. ROSENBLATT: The first issue,  
10 during her 300-plus deposition, this lady has been  
11 involved her entire career with testing nicotine  
12 levels, secondhand smoke in the atmosphere, in the  
13 work place, in the home, airlines, everywhere. That  
14 is what she's done. She's more familiar with all of  
15 that information than anyone. She was asked  
16 questions about the levels and extent over a period  
17 of years.

18 She said during her deposition that smoking  
19 had gone down substantially--this is her initial  
20 deposition--had gone down substantially. In the  
21 past she reviewed materials. She intended to refine  
22 and review more materials, which she did. There is  
23 absolutely nothing wrong with that, and then she  
24 explained that it reconfirmed and ratified her prior  
25 opinions, many of which had not even been asked.

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1           Now, what she did say in her first  
2 deposition, which was the basis for the initial  
3 request for another deposition, was that she was  
4 going to do a statistical analysis in terms of  
5 gathering specific data, applying numbers, and  
6 coming up with year-by-year during the '50s and '60s  
7 and '70s, the specific levels--she would try to--of  
8 exposure each year during decades and so forth. She  
9 recognized and advised us and I believe she told  
10 counsel during her deposition that would be a major  
11 undertaking; it would take an enormously long period  
12 of time, and she didn't feel it was necessary  
13 because she analyzes this to other work place-type  
14 exposures.

15           She testified before that she was involved  
16 in preparation of the EPA report. There's an  
17 ongoing OSHA dispute right now as to the levels of  
18 smoke in the work place. She has testified. She's  
19 prepared presentations, in fact.

20           THE COURT: The question is did she do  
21 any of that additional work?

22           MS. ROSENBLATT: No. All she did is  
23 she reviewed some articles and, you know,  
24 apparently, like most experts before they come to  
25 trial, they reread all of the data and they just,

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1 you know, want to brush up on it. She didn't come  
2 up with anything new.

3 The only thing that I noticed in her first  
4 deposition and in her deposition today, she said  
5 that--and I'll quote, and this is something that I  
6 think was intentionally not asked and this is where  
7 I think this is going. Okay. She did say in terms  
8 of cigarette equivalents in terms of the exposure,  
9 it was equivalent to how much a flight attendant  
10 would be smoking. In terms of an equivalent she  
11 says on Page 51 today, "If one does use cigarette  
12 equivalents, one can find that the exposure of  
13 flight attendants, if expressed in cigarette  
14 equivalents, can be substantial."

15 On the next page: "You can actually get a  
16 substantial dose of a carcinogen in terms of  
17 cigarette equivalents," and she discusses that and  
18 she discussed it in her first depo.

19 The defendants have not asked her at any  
20 time, "Well, you know, what is the cigarette  
21 equivalent? What do you think it is? What range?"  
22 They have not done that. She is going to define  
23 that today. I'm just volunteering that. She never  
24 was asked that, you know, and that's something that  
25 is perfectly appropriate.

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1           They have an obligation, when an expert says  
2 in both depositions that there is a substantial  
3 cigarette equivalent and I think it's misleading to  
4 use nicotine: "Well, what do you think that is?" I  
5 mean, there is a burden on counsel to ask that.

6           THE COURT: What I want to know is what  
7 is new?

8           MS. ROSENBLATT: Nothing is different,  
9 is my bottom line. This is the same as this. They  
10 are both the same. What she did is she went through  
11 her study, she went through what she has printed,  
12 she went through various articles and reconfirmed  
13 that what she said here was correct, and yes, in  
14 fact, it was in the '60s and '70s when half the  
15 population or more was smoking; yes, there was a lot  
16 more smoking on airlines.

17          She reconfirmed again that it wasn't until  
18 1973 that smoking was segregated into separate  
19 sections, and that, therefore, people were smoking  
20 throughout the cabins and, of course, she said here  
21 and she said today--the previous and today's  
22 deposition that you're going to have a situation  
23 when you do a study in 1989 where far fewer people  
24 smoke and you're relegated to a couple of rows, of  
25 course it's going to be understated, and that's

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1 really basically--and she doesn't come up with  
2 anything different other than she said she read some  
3 articles.

4 THE COURT: Let me see what he is  
5 saying.

6 MR. FURR: Okay. Let me begin by  
7 saying that this issue has nothing to do with  
8 cigarette equivalents. We don't oppose her  
9 testifying about cigarette equivalents. That's not  
10 the issue.

11 The issue is that she now claims to have  
12 done some additional work, and I read to Your Honor  
13 from the deposition this morning in which she has  
14 tried to put together information in some way to  
15 estimate what exposures were in the past.

16 She alerted us in her deposition that she  
17 had been thinking about this on May 27, and here's  
18 what she said on May 27: "All I have done at this  
19 point is thought about how I might go about it. I  
20 haven't done the work. I've just barely begun  
21 thinking about this. Usually this is something that  
22 takes me a little while." And then she testifies  
23 later in the deposition that we need to be patient  
24 with her because she's only been working on the case  
25 for about a week.

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1 THE COURT: Let me ask you another  
2 question. If that be the case and all after that,  
3 what is the need to take her deposition this  
4 morning? Why was it that you insisted on having her  
5 deposition taken?

6 MR. FURR: Your Honor, this issue of  
7 taking her deposition has a history to it.

8 THE COURT: Was it to discover what she  
9 had done when she told you she was going to do it?

10 MR. FURR: No, Your Honor. Originally,  
11 we noticed this deposition for Tuesday believing  
12 that she was going to testify on Thursday. The  
13 deposition was for two purposes. One was to, in  
14 fact, identify and review with her the documents  
15 that she provided to us last Friday.

16 THE COURT: Okay.

17 MR. FURR: The second was to discover  
18 what new work she had done so that we would have one  
19 day to attempt to prepare for it.

20 THE COURT: But you knew about it.

21 MR. FURR: Yesterday Mrs. Rosenblatt  
22 represented that there was no new work done and  
23 there was no need for a deposition and I had stated  
24 in Court, "You're right. The need for a deposition  
25 may be less. It may be shorter. We still have to

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1 walk through the documents phase."

2 THE COURT: But she didn't do any  
3 original work in either doing new testing or making  
4 any new calculations where her original work--all  
5 she did was review some other things that other  
6 people have said.

7 MR. MOSS: No.

8 THE COURT: And extrapolated that  
9 information back to the 1970s?

10 MR. FURR: No. She has made a new  
11 calculation apparently. This morning she testified  
12 that she believes that exposure in the '70s was  
13 twice than in the late '80s.

14 THE COURT: Based upon?

15 MR. FURR: Based upon her review of the  
16 data related to the three issues that---

17 THE COURT: Which she said that she was  
18 going to do anything.

19 MR. FURR: No. She told us she didn't  
20 know whether she was going to do it.

21 THE COURT: Well, you found out. Okay.  
22 Overrule the objection.

23 MR. MOSS: Judge, can I say something,  
24 sir?

25 THE COURT: Yes. Go ahead.

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1                   MR. MOSS: Let me put this quickly and  
2 I think succinctly in perspective. I don't know the  
3 exact day of when Mr. Furr argued the  
4 motion--probably seven, eight or nine or ten days  
5 ago--to get the raw data that this witness says at  
6 her May deposition that she relied upon but wouldn't  
7 give because it was proprietary.

8                   The opinions she gave at that deposition we  
9 could not properly question. We certainly  
10 questioned her, but we could not do what we felt was  
11 an appropriate questioning because she would not  
12 give up that data.

13                  Mr. Furr came in here and argued that  
14 motion. You wanted to know what this was all about,  
15 and Your Honor said, "Yes. You are entitled to it  
16 and I want them to deliver it to you, and then you  
17 will have X number of days to have your people  
18 review it."

19                  Mr. Furr said, "Well, Judge, it's going to  
20 take longer than that," and Your Honor said, "Well,  
21 I can't deal with that. You have enough people. Go  
22 out and review it. You're entitled to it.  
23 Mr. Rosenblatt and Mrs. Rosenblatt, get it down to  
24 them." That's what Your Honor ordered.

25                  THE COURT: We are not talking about  
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1 that data.

2 MR. MOSS: I think if you just give me  
3 another minute, I can make a point--

4 THE COURT: All right.

5 MR. MOSS: --that I think makes some  
6 sense here and brings it back.

7 Your Honor ruled that, and then they  
8 indicated the other day, and there was a time frame  
9 given, and yesterday they said, "Well, we can't live  
10 by that time frame. We have to get her on and we  
11 have to get another witness on Thursday," and Your  
12 Honor said, "Okay. You want to take her deposition?  
13 Go do it."

14 Mr. Furr got up and said, "Judge, she  
15 indicated she was going to give new opinions,  
16 additional work."

17 Mrs. Rosenblatt then got up and said, "Hold  
18 on. She is not going to give any additional  
19 opinions. She has not done any work." It's right  
20 there. I can read it to you again, but that was  
21 yesterday in court.

22 Based upon that, Your Honor said, "Okay.  
23 You want to take her deposition on that raw  
24 material? You do that tomorrow morning."

25 We were in the position and Your Honor ruled

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1 based upon the representation made by counsel that  
2 she had not done any. She talked about the fact  
3 that Mrs. Hammond needed to move her schedule up.  
4 She was going out of town. She was back--I mean,  
5 all this Mr. Furr just read to you, but I want to  
6 emphasize my point, and it was that that  
7 representation was made by counsel in open court  
8 yesterday: "She has not done anything new. She's  
9 been too busy. She's out at the University of San  
10 Francisco, and therefore, Judge, all this stuff  
11 about her doing new work is just another one of  
12 these defendants' fears that are unfounded."

13 THE COURT: The question is whether  
14 it's new work. That's the real issue.

15 MR. MOSS: Well, Mr. Furr was  
16 addressing that and I think he can do that.

17 THE COURT: It doesn't sound like it's  
18 new work to me. It just sounds like it's a  
19 refresher. If somebody asked her at that point,  
20 even without going over all that material, whether  
21 she could extrapolate the information that she  
22 already had in 1970, she probably could; I don't  
23 know.

24 MR. MOSS: She was already asked that,  
25 sir. That's the point Mr. Furr is trying to make.

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1 She was asked that. She said, "I haven't done it  
2 yet. I may not," and that's the point. That's what  
3 I really think is at the heart of this.

4 THE COURT: Okay.

5 MR. MOSS: There are two things: Her  
6 answer there, "I haven't done it yet."

7 THE COURT: She actually hasn't made an  
8 opinion on that?

9 MR. MOSS: That's correct.

10 THE COURT: Never made an opinion?

11 MR. MOSS: Not on the deposition.

12 THE COURT: That's what I'm talking  
13 about.

14 MR. FURR: She stated that she believed  
15 it would be higher, but that she had done no work to  
16 confirm that.

17 THE COURT: I understand what you're  
18 saying. Okay. In that regard, as long as she  
19 mentioned that she believed it would be higher,  
20 relegate that to the original deposition. Any work  
21 after that would be out. I'll agree with you on  
22 that. Then I change my mind on that. They can ask  
23 her about would it be higher or lower, whatever it  
24 might be, based upon the information that she had at  
25 the time of her deposition when she said she

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1 believes it would be higher.

2 MR. MOSS: Then I assume her answer  
3 would be limited to, "I believe it would be higher."

4 THE COURT: Yes.

5 MR. MOSS: Then I think they need to  
6 talk to their witness about that.

7 THE COURT: Okay.

8 MS. ROSENBLATT: Your Honor---

9 THE COURT: No. It's only fair.

10 MS. ROSENBLATT: This is--no. This has  
11 been twisted around. It's not fair. I would then  
12 need to go through---

13 THE COURT: If she did additional  
14 work---

15 MS. ROSENBLATT: No, she didn't, Your  
16 Honor.

17 THE COURT: If she read additional  
18 material and changed her mind based upon the  
19 original material so that now she has a number, that  
20 to me is additional work. They should have been  
21 told that before they took the deposition and not  
22 find out in the deposition, so they would be able to  
23 prepare for it. Okay. That's the difference.

24 MS. ROSENBLATT: Your Honor---

25 THE COURT: I'm just going to stick

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1 with it. Okay. Now, she could testify that if she  
2 had the numbers, it would have been higher based  
3 upon whatever she knew at that time. That's fine.  
4 But I don't really want to get into that cat fight  
5 and that's what we are talking about on every one of  
6 these witnesses.

7 MS. ROSENBLATT: I'm not asking Your  
8 Honor to change your ruling, but throughout this  
9 deposition she said there were many more people  
10 smoking. She went through all of it.

11 THE COURT: Fine. Let her testify  
12 about that.

13 MS. ROSENBLATT: She won't say double,  
14 she won't say the specific, but if she say it was  
15 substantially higher---

16 THE COURT: Whatever she can say based  
17 upon the information she had at the time of the  
18 deposition, no problem, and up to that point. Okay?

19 MS. ROSENBLATT: Okay. I'll explain  
20 that to her.

21 THE COURT: Okay.

22 MS. ROSENBLATT: Okay.

23 THE COURT: It may not even be an  
24 important point, but that's the way it is.

25 MS. ROSENBLATT: It isn't, Your Honor.

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1 It really isn't.

2 THE COURT: If it isn't, what are we  
3 fighting over?

4 I hope we are through with this business of  
5 the depositions, not telling the other side one  
6 thing and not being available and all that sort of  
7 thing. We can't go for the entire trial that way.  
8 It seems like every witness we have is the same  
9 problem.

10 Do we have any other anticipated problems  
11 along these lines?

12 MR. ROSENBLATT: Not from our side,  
13 Judge.

14 THE COURT: No. I'm talking about  
15 people who are coming in that they need to get  
16 additional information from because they said they  
17 were going to do some other work. No?

18 MR. ROSENBLATT: They seem to have a  
19 problem with--you know, three hundred pages isn't  
20 enough.

21 THE COURT: Look, you know as well as I  
22 do that lawyers will do what lawyers do, which will  
23 be object to the other side's work. You know that.  
24 You probably do the same thing with them. I'm not  
25 faulting them for doing that. The question is

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1 whether or not it's necessary at this point to get  
2 into all of these little fights, all of which should  
3 have been taken care of long before this.

4 MR. HARDY: Well, as long as we are on  
5 it, this hasn't been brought to the Court's  
6 attention officially yet, but I guess it might as  
7 well be done now.

8 Before the lunch recess, we argued the issue  
9 of these additional video tapes, and Your Honor  
10 ruled and I'm not re-arguing, former Surgeon General  
11 Steinfeld. What I learned afterward is that  
12 apparently it is going to be plaintiffs' counsel's  
13 position that they not only want to videotape  
14 Dr. Celermajer by telephone in Australia, but they  
15 want to do it in the middle of the defendant's case  
16 instead of their own case.

17 To me, that is a completely different matter  
18 and one which is highly objectionable, especially  
19 under the circumstances. Your Honor has talked  
20 repeatedly about how long we have all had on this  
21 case and here's a man from another continent, and we  
22 are learning about that kind of problem now.

23 THE COURT: Okay. What about that?  
24 Why can't it be done now?

25 MR. ROSENBLATT: In an effort to give

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1    them as much advance notice as possible, we told  
2    them the dates of which Dr. Celermajer had available  
3    now, and I said, you know, "I'm not really happy  
4    with those dates because it's possible it could be  
5    on your case. I don't know exactly when we are  
6    going to end." So in view of Your Honor's ruling,  
7    I'm going to do everything within my power to have  
8    Dr. Celermajer move it up. If I reach the point  
9    where he gives me one or two dates, which would be  
10   on their case, I'll address it then. I'm going to  
11   do the best I can.

12           THE COURT: Worst scenario--he had his  
13   deposition taken?

14           MR. ROSENBLATT: It was a discovery  
15   deposition taken by them.

16           THE COURT: That's the worst scenario,  
17   that there is a discovery deposition--

18           MR. ROSENBLATT: Correct.

19           THE COURT: --if something happens and  
20   he's unavailable totally.

21           MR. ROSENBLATT: Correct.

22           THE COURT: So we have that. It's not  
23   unheard of to put witnesses on out of turn. A lot  
24   of times defense does it during the plaintiff's case  
25   because of their schedule problems, and of course, a

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1 little leeway along those lines. Sometimes it may  
2 happen that they may have to do it just the other  
3 way around. I'm not saying that they shall or  
4 should, but whatever it may be. But sometimes it  
5 comes up. I would hope that you would be able to do  
6 it prior to the time that you rest.

7 MR. ROSENBLATT: I certainly want to  
8 because from our standpoint that's the most logical  
9 time to do it.

10 THE COURT: Of course. His problem is  
11 what? It's the schedule.

12 MR. ROSENBLATT: Yeah. The problem is  
13 his mother is ill. He has taken her to surgery in  
14 another country, all kinds of things, besides which  
15 professionally he is extremely busy. We thought we  
16 were being very conservative when we picked out a  
17 date, that he was going to come here in early July,  
18 but we were still in jury selection.

19 THE COURT: But since you don't have to  
20 do any of this traveling business, that might  
21 hopefully solve the problem a lot. So if you can  
22 get in touch with him, you have to do that and  
23 discuss it with him and explain what the Court would  
24 like. I'm sure that he will accommodate you.

25 MR. COFER: Just for background on

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1 this, his deposition was taken in Los Angeles. The  
2 plaintiffs gave us a specific date and said, "The  
3 guy is going to be in town. If you want his  
4 deposition, take it then." We went. Plaintiffs did  
5 ask questions, too. It was a full deposition. It  
6 is in the record and they had the chance to inquire  
7 as well.

8 THE COURT: Yes, I'm glad it is, but  
9 there is such a thing as trial testimony deposition  
10 or trial testimony which is what I'm interested in.  
11 I'm not interested in depositions. I really am not  
12 because I think that is one thing you do in the  
13 discovery process of pre-trial, but when you get  
14 into testimony at trial, you should take a  
15 deposition or a statement as if you would be in  
16 trial, and that's where the difference comes.

17 MR. MOSS: That's the point we tried to  
18 make earlier, as to why it's important we be allowed  
19 to be there.

20 THE COURT: Well, I don't think you  
21 have to personally be there because you can do it by  
22 telephone. I'm not going to change my mind on that,  
23 but all of that can be done with the magic of  
24 electronics. It's the form in which it's done is  
25 what I'm talking about.

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1 MR. WHITING: Your Honor, I understand  
2 your ruling and I just want to say that at least on  
3 behalf of R.J. Reynolds, I reserve the right to have  
4 someone present at both of these depositions.

5 THE COURT: Sure.

6 MR. WHITING: So that we should have  
7 adequate notice about the timing of them so we can  
8 make some arrangements.

9 THE COURT: Wherever possible we'll  
10 give you that opportunity. You have that absolute  
11 right to be there, no question about it, and  
12 wherever possible. We are getting into a lot of  
13 circumstances that none of us anticipated, so we'll  
14 do the best we can.

15 MR. ROSS: I want the record to be  
16 clear about the other one that we talked about,  
17 Dr. Steinfeld. I think you're under a  
18 misimpression. There are circumstances about  
19 Dr. Steinfeld.

20 I took Dr. Steinfeld's deposition. I want  
21 Your Honor to know how it came about. We decided  
22 not even to take Dr. Steinfeld's deposition when he  
23 was first disclosed. We cancelled the deposition.  
24 Plaintiff's noticed Dr. Steinfeld for a video tape  
25 deposition to preserve his deposition for trial in

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1 California.

2 Mr. Cofer and I traveled to California for  
3 that deposition. When we got there, the morning of  
4 the deposition, Mr. Rosenblatt told us that they  
5 changed their minds; they weren't going to take a  
6 video deposition because they wanted to bring  
7 Dr. Steinfeld to the trial, but they knew that  
8 Dr. Steinfeld had a spinal condition that didn't  
9 allow him to travel. How do we know that? They  
10 insisted that the deposition had to take place at a  
11 suburban location 45 minutes from downtown San Diego  
12 because Dr. Steinfeld could not even travel to  
13 downtown San Diego. So they were completely aware  
14 and they said, "We'll take a chance for  
15 Dr. Steinfeld to come to trial. If you want to go  
16 ahead and take his deposition, go ahead."

17 So we took his deposition without video.  
18 They made a conscious decision not to videotape his  
19 testimony.

20 Now, with that decision, they changed their  
21 minds in the middle of trial and they want to force  
22 us to go back out there and let them vide tape a  
23 deposition.

24 Your Honor has said to our side repeatedly,  
25 "Enough is enough. There has to be an end." We

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1 think that rule ought to go both ways. They made  
2 the decision not to video tape it when they full  
3 well knew the chances were very good Dr. Steinfeld  
4 would never be able to travel here.

5 THE COURT: Okay. Thank you. I  
6 appreciate that. All right. You're ready to go?

7 MR. ROSENBLATT: Yes, Your Honor.

8 THE BAILIFF: Bringing in the jury.

9 (The jury entered the courtroom and the  
10 following proceedings were had:)

11 THE COURT: Okay, folks. Have a seat,  
12 please. Sorry for the delay. It couldn't be  
13 helped.

14 Ready to proceed?

15 MR. ROSENBLATT: Yes, Your Honor.

16 Dr. Hammond.

17 (The witness entered he courtroom.)

18 Thereupon:

19 KATHERINE HAMMOND, Ph.D.

20 Having been first duly sworn, was examined and  
21 testified as follows:

22 THE COURT: I'm going to ask you to  
23 speak up real loud and clear into that microphone  
24 which is right there.

25 THE WITNESS: I'll try. Thank you.

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1 THE COURT: Thank you.

2 DIRECT EXAMINATION

3 BY MR. ROSENBLATT:

4 Q. Dr. Hammond, for the record, please state  
5 your full name and your professional address.

6 A. My name is Stella Katherine Hammond, and I  
7 am an associate professor at the School of Public  
8 Health, University of California, Berkeley, 140  
9 Warren Hall, Berkeley, California, 94720.

10 Q. I didn't need the Zip, but fine.

11 You are not a medical doctor; you are a  
12 Ph.D.?

13 A. Correct.

14 Q. You are a Ph.D. in what discipline?

15 A. Chemistry.

16 Q. So it's accurate to say that you are a  
17 chemist?

18 A. Yes.

19 Q. Okay. I notice in looking at your  
20 curriculum vitae, your resume, it gives your name.  
21 It says Ph.D., CIH. What does CIH mean?

22 A. That's Certified Industrial Hygienist, which  
23 is--the field of industrial hygiene is one that  
24 recognizes, evaluates and tries to control exposures  
25 to workers that might make them sick. So we try to

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1 recognize what they are, evaluate them and reduce  
2 them, and there's a special certification for that.

3 Q. Let me take you through your educational  
4 background.

5 You went to Oberlin College and you got a  
6 degree there in chemistry, correct?

7 A. Correct.

8 Q. That was your undergraduate degree?

9 A. Yes.

10 Q. In what year was that?

11 A. 1971.

12 Q. Okay. Now, then you got a Ph.D. in  
13 chemistry?

14 A. Yes.

15 Q. From what institution?

16 A. Brandeis University.

17 Q. Where is Brandeis?

18 A. In Altham, Massachusetts.

19 Q. Now, once you have your undergraduate degree  
20 in chemistry and you make a decision you want to  
21 become a Ph.D. in chemistry, how many more years of  
22 formal education are we talking about?

23 A. A doctorate is much less defined than an  
24 undergraduate degree because a doctorate degree is a  
25 degree in research, and so it tends to be on average

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1 between four and seven or eight years, and they  
2 really will vary. Probably they are averaging five  
3 or six years.

4 Q. How long was it for you?

5 A. Four.

6 Q. Then you have an MS degree from the Harvard  
7 School of Public Health in 1981?

8 A. Yes.

9 Q. Tell us about that, please.

10 A. Well, I was teaching chemistry for five  
11 years and decided I wanted to do some work more  
12 directly in the environment and take my concerns  
13 there, so I went back after my doctorate, got my  
14 master's degree, I did a two-year master's degree in  
15 one year at Harvard in order to really learn a lot  
16 to enter this field to become a certified industrial  
17 hygienist, among other things.

18 Q. Okay. And again, looking at your  
19 professional resume, you were professor of chemistry  
20 at Wheaton College in Norton, Massachusetts from  
21 when to when?

22 A. 1976 to 1980.

23 Q. And tell us about your relationship, your  
24 connection to the University of Massachusetts  
25 Medical Center, how long you were there and what you

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1 taught.

2 A. Right. I was there for ten years and was  
3 promoted and tenured there. I taught environmental  
4 health sciences and directed the research of medical  
5 students, medical residents, undergraduate students  
6 in nearby colleges, and my primary responsibility  
7 was performing research.

8 Q. Okay. Now, the general field of  
9 environmental health sciences, it almost defines  
10 itself, but tell us basically what is involved  
11 there.

12 A. It's actually a very, very broad field, but  
13 it's examining what chemicals or physical agents are  
14 in the environment that might affect people's  
15 health, and so one could approach that field in many  
16 different ways and there are many different aspects  
17 of that field.

18 Q. And then did you go from the University of  
19 Massachusetts Medical Center to the University of  
20 California, which is your present position?

21 A. That's correct.

22 Q. And now which department or division of the  
23 university are you in?

24 A. I'm in the School of Public Health and in  
25 the Division of Environmental Health Sciences where

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1 I direct the industrial hygiene program.

2 Q. Now, in looking at some of your teaching  
3 experience, you mention something in 1989 while you  
4 were at the University of Massachusetts:  
5 environmental carcinogens.

6 A. Yes.

7 Q. Tell us about that course.

8 A. That was a seminar course, I think, a  
9 research seminar course, and we were--it was really  
10 a course where several professors got together who  
11 were doing research in the area of looking at  
12 carcinogenesis and environmental materials, and said  
13 let's try to think about where we can go forward in  
14 the field and where else we could go and what needs  
15 to be done. So it was kind of a teaching ourselves  
16 seminar with some students as well learning. Some  
17 exciting things about the university.

18 Q. The jury has heard general descriptions of  
19 the field of epidemiology. What is your background  
20 or expertise specifically in the field of  
21 epidemiology?

22 A. Well, I took courses in epidemiology while I  
23 was at Harvard, several courses, and I've also  
24 taught about occupational epidemiology. And most of  
25 my research in the last 16, 17 years has been on

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1 doing exposure assessment for epidemiologic studies,  
2 which is to say I'm trying--if you think of an  
3 animal study like in a laboratory, you have a dose,  
4 you have a rat, and you see how many of them get  
5 sick. We don't do that with people, that's  
6 unethical, but what we do do is try to say, okay, if  
7 people work in the factory, do they get sick, and  
8 part of my work is trying to say, how much dose did  
9 they get, what were they exposed to. So I've done a  
10 lot of work with that in that context.

11 Q. As I'm hearing you, it seems as though your  
12 specialty within the field of chemistry, within the  
13 field of environmental health sciences, has pretty  
14 much come down to exposure assessment?

15 A. Yes. That would be a good evaluation of my  
16 work. I've both used the chemistry to develop the  
17 tools and worked with epidemiologists in  
18 implementing those.

19 Q. Have you already defined to us precisely  
20 what exposure assessment means?

21 A. Well, it can have many aspects. I mean,  
22 that is a general description, but in some cases you  
23 need to know what people were exposed at one point  
24 in time. Sometimes you need to know a history and  
25 go back.

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1           For instance, in a study we did of looking  
2   at auto workers and working with machine fluids, we  
3   wanted to know what was their exposure in the past  
4   because we wanted to see if they had cancer today as  
5   a result of past exposures, or we looked at women  
6   who work in the semiconductor industry and said do  
7   they have a higher rate of spontaneous abortion due  
8   to their work in the semiconductor industry; those  
9   kinds of questions. So I need to look not only at  
10  their exposures now and understand them, but try to  
11  understand in the past what those exposures were.

12       Q.   You have a section of your resume which is  
13  entitled Service on Scientific Advisory Committees,  
14  and in that section you mention that you are a  
15  consultant to the Science Advisory Board of the  
16  United States Environmental Protection Agency.  
17  During what time frame was that?

18       A.   I think that started around 1989, '88 or  
19  '89, and I'm actually still a consultant, but my  
20  primary work was finished around 1992, the intensive  
21  part.

22       Q.   In that role as a consultant to the Science  
23  Advisory Board of the Environmental Protection  
24  Agency, what, if anything, did you have to do with  
25  the subject of secondhand smoke?

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1       A.    I was part of the panel that reviewed the  
2       documentation that the EPA had prepared, whether or  
3       not secondhand smoke was a lung carcinogen, and we  
4       actually reviewed three drafts of that document.

5       Q.    Now, my understanding is that the ultimate  
6       final document was published by the EPA, I believe,  
7       in January 1993, where it reached certain  
8       conclusions and it was made public and it got a lot  
9       of attention, correct?

10      A.    Yes.

11      Q.    Were you in agreement with the conclusion  
12      that secondhand smoke, environmental tobacco smoke,  
13      is a Class A carcinogen?

14      A.    Yes.

15      Q.    Were you in agreement with the conclusion  
16      that secondhand smoke causes lung cancer in healthy  
17      nonsmokers?

18      A.    Yes.

19      Q.    You were on a committee on the assessment of  
20      wartime exposure to herbicides in Vietnam?

21      A.    Yes.

22      Q.    What did that involve?

23      A.    This was the National Academy of Sciences  
24      which you spoke about earlier today. I think they  
25      do cabin air quality studies as well, and this was

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1 the update. There was a committee that had looked  
2 at soldiers in Vietnam and their exposures to  
3 herbicides, Agent Orange and things like that, and  
4 to determine what diseases might have been caused by  
5 that exposure.

6 And part of that--I was not part of the  
7 original committee, but then what they did is they,  
8 as part of the Enabling Act, Congress actually asked  
9 that the data be revisited every two years because  
10 science evolves, new data comes out. So I was part  
11 of what was called the first biannual update. So we  
12 reviewed all the data that had come out in the two  
13 years after the report was first published to see if  
14 there was any new data about adverse health effects  
15 that might be related to that service.

16 Q. I notice also there's a section of your  
17 resume where it mentions you are a manuscript  
18 reviewer, and then you list certain publications  
19 such as the Journal of American Medical Association,  
20 Oncology Review, the American Journal of  
21 Epidemiology.

22 What is your role as a manuscript reviewer  
23 for these publications?

24 A. Well, part of the peer review process in  
25 science is that when a scientist has completed a

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1 body of work and writes up a paper, one then submits  
2 it to a journal to share it with the public. And  
3 it's probably an elite public that reads these  
4 little magazines--they are not easy to read--the  
5 scientific public anyway, and before it can be  
6 published in what are called the peer-reviewed  
7 journals, and there is a distinction in the  
8 peer-reviewed journals, those manuscripts need to go  
9 out to other scientists to look at it and say, "Does  
10 this make sense? Is this logical? Have they  
11 explained everything they need to explain?" And  
12 then make a judgment whether the paper should be  
13 published as it is, rejected, or maybe published if  
14 some modifications are made and suggest what  
15 modifications might be important. And so my role as  
16 a peer reviewer is to read those papers and do those  
17 analyses.

18 Q. And then when you, yourself, are the author  
19 of an article and your article is submitted for  
20 publication in a peer-reviewed journal, I guess it  
21 goes through the same process?

22 A. Right, but it hurts more that way. Now the  
23 people are criticizing you.

24 Q. Now, you list your peer-reviewed journal  
25 articles, and I believe the total is 83, where you

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1 and co-authors have written articles for a variety  
2 of scientific publications?

3 A. Right.

4 Q. You've had an article of yours appear in the  
5 Journal of the American Medical Association?

6 A. Two articles, yes.

7 Q. What is OSHA, O-S-H-A? Those are the  
8 initials. What does it stand for?

9 A. It's the Occupational Safety and Health  
10 Administration, and it's set up in the federal  
11 government, and their responsibility is to ensure  
12 that workers in the U.S. are working in a safe  
13 environment, and so they issue rules and regulations  
14 and they can actually inspect work places to make  
15 sure that that's being done.

16 Q. Is there a mandate to protect workers only  
17 who work for the federal government or workers who  
18 work for private employers?

19 A. Their mandate is to protect all workers with  
20 the exception of those who work for state  
21 governments, I believe. And there are a few minor  
22 exceptions. People who work on the rivers and the  
23 oceans are protected by the Coast Guard and not by  
24 OSHA, but there are few minor exceptions.

25 Q. Is OSHA within the cabinet of the Department

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1 of Labor within the federal government?

2 A. Yes, yes.

3 Q. I'll come back to ask you some more specific  
4 questions about exactly what you've done for OSHA.

5 Tell the jury about any research that you've  
6 been involved in or studies specifically involving  
7 flight attendants.

8 A. I was involved in a study that took place in  
9 the Spring of 1988, and this study was initiated  
10 upon the request of Surgeon General Koop to the  
11 National Cancer Institute, and the U.S.  
12 Environmental Protection Agency participated with  
13 that, and because I was working with the  
14 Environmental Protection Agency, they asked me to  
15 help do the exposure assessment, and would you like  
16 me to describe the study then?

17 Q. Yes, please.

18 A. In that study, the goal was to study both  
19 flight attendants and passengers on four flights,  
20 and so there were four flight attendants and five  
21 passengers who were studied as they did four long  
22 flights, and the basic goal was that they stay free  
23 from smoke for three days, flew on the plane. We  
24 measured their exposures while they were flying.  
25 After they flew, they were supposed to stay free of

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1 smoke for three days, if possible, and during that  
2 time they collected their urine and looked for, in  
3 the urine, some of the chemicals from the tobacco  
4 smoke to see if they actually got--the chemicals  
5 from tobacco smoke showed up in their urine from  
6 passive smoking, and that is what was repeated for  
7 each of the three flights.

8 Q. And the title of that article was Passive  
9 Smoking on Commercial Airline Flights?

10 A. Yes.

11 Q. And it was published in the Journal of the  
12 American Medical Association on February 10, 1989?

13 A. Yes.

14 Q. Any other studies or research particularly  
15 involving flight attendants?

16 A. That's the only study I have done on flight  
17 attendants.

18 Q. Have you read and are you familiar with all  
19 the literature that relates to exposure assessment  
20 and flight attendants specifically dealing with the  
21 issue of secondhand smoke?

22 A. I always hesitate to say I've read  
23 everything. I have made an attempt to wade through  
24 what I could locate.

25 Q. In terms of the exposure that flight  
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1 attendants have to secondhand smoke, are you able to  
2 express that in cigarette equivalents?

3 A. Yeah. We could probably do that. Cigarette  
4 equivalents can be complicated.

5 Q. Give us, if you can, the uncomplicated  
6 version first, and then, you know, I'll---

7 A. Okay. First, what year do you want the  
8 exposure for?

9 Q. Well, I'm trying to talk about a large time  
10 frame including the '60s, the '70s and the '80s.

11 A. Okay. Let me start from the Mattson study  
12 which is where we have the best data, and based on  
13 that data---

14 Q. The Mattson study being the study you  
15 participated in and we have just been talking about?

16 A. Yes. NCI, National Cancer Institute study.  
17 In that study, we measured their exposures as they  
18 were on the plane.

19 Now, with cigarette equivalents, it really  
20 depends on which chemical you pick, but I maintain  
21 that one wants to look at some of the carcinogens,  
22 focus on the carcinogens, and in particular try to  
23 make our best understanding of what we're seeing,  
24 and if you look at some of the carcinogens, you  
25 could say that during those particular flights,

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1 flight attendants may have been exposed to,  
2 depending on the, let's see, on the order of a  
3 quarter to half a pack.

4 Q. A quarter to half a pack, what, a day?

5 A. Of cigarettes per flight.

6 Q. Per flight.

7 A. Per flight. Actually, it would depend on  
8 just how, you know, the extremes of the exposure.  
9 Obviously, there's a huge difference in the  
10 exposures, over a hundred fold, from flight  
11 attendant to flight attendant, so that varies.

12 And then if you go back in history, in time,  
13 flight attendants are exposed to more and more and  
14 more exposures as there were more and more smokers  
15 on planes. So I would think that if you went back  
16 in time you would easily get to---

17 MR. FURR: Objection, Your Honor.

18 Excuse me, Dr. Hammond. I'm sorry.

19 I believe this is the area that we have  
20 discussed.

21 THE COURT: Overruled at this point.

22 Q. You can continue your answer, doctor.

23 A. I'm sorry?

24 Q. You can continue your answer.

25 A. So when planes had more smokers on them, and

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1 we all remember that--by the time we did the Mattson  
2 study, it was only about a year, year and a half  
3 before smoking was banned on planes entirely. So we  
4 were down to relatively few rows of smoking. But as  
5 those who had flown prior to that know, there used  
6 to be more rows of smoking, so obviously the more  
7 rows of smoking, the more smokers, the more smoke  
8 there was, and so the exposure would have been  
9 higher. So it would have been substantially higher  
10 as you go back in time.

11 So I think you can go back in time and  
12 estimate that exposures could have easily been over  
13 half a pack a day per flight. Well, say over a half  
14 a pack in a five- to six-hour flight.

15 Q. A half a pack for that flight?

16 A. Right.

17 Q. Now, from the standpoint of a chemist, what  
18 is the difference between sidestream smoke and  
19 mainstream smoke?

20 A. As a chemist, I'll tell you, they are burned  
21 under different conditions so you get different  
22 chemistry happening. So if you think about when you  
23 watch someone smoke a cigarette when they inhale,  
24 you see that little red glow at the end of the  
25 cigarette, and it's just like a red glow in your

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1 electric heater or the electric stove. It's hot and  
2 it's about 900 degrees celcius, centigrade. And  
3 then when it smolders in the ashtray, you notice it,  
4 turns gray which is not so hot. It's still actually  
5 pretty hot, but not as hot. It's about 600 degrees.

6 So that, plus the fact that when you smoke,  
7 you're inhaling, you're pulling air into the tip of  
8 the cigarette, so that what you do is you bring  
9 oxygen in. When it smolders, it's kind of starving.  
10 It uses all the oxygen up around it. So what  
11 happens is you have less oxygen there when it  
12 smolders and it's a lower temperature, and that  
13 means you get a different--it's a different  
14 combustion condition, and so you get different  
15 chemicals, or in different proportions--it's truly  
16 the same chemicals, but the proportions are  
17 different in mainstream and sidestream smoke.

18 Q. Well, that's part of what I was getting to,  
19 as to why there might be some carcinogens which are  
20 present in higher concentrations in sidestream smoke  
21 than in mainstream smoke.

22 A. Right.

23 Q. First of all, is that true?

24 A. Yes. Many carcinogens are higher in  
25 sidestream than mainstream smoke.

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1 Q. And the explanation for that is?

2 A. There's different combustion conditions.

3 Q. Okay.

4 A. Also, most of cigarette smoke goes into the  
5 air in sidestream smoke, and less of it goes into  
6 the smoker's lungs than goes into the air.

7 Q. Have you had occasion to study the blood  
8 samples of nonsmokers to make a determination as to  
9 their level of exposure to secondhand smoke?

10 A. Yes, I have.

11 Q. Tell us about that.

12 A. We looked at for one of the carcinogens in  
13 tobacco smoke, and it's one of those lovely names,  
14 4-Aminobiphenyl. We can call it 4-ABP.

15 Q. Help the court reporter. She's probably  
16 familiar with that name.

17 A. A-M-I-N-O-B-I-P-H-E-N-E-L.

18 Q. Close enough.

19 A. 4-ABP. So it's not as long as some of the  
20 names, but there's a lot of long names.

21 Anyhow, it's a carcinogen in tobacco smoke,  
22 and we collected the blood from smokers and from  
23 nonsmokers and analyzed for how much of that blood  
24 showed up in the blood of smokers and how much in  
25 the blood of nonsmokers, and what we found was that

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1 on average, on average, a nonsmoker's blood had  
2 about 15 percent as much of that carcinogen as a  
3 smoker, although some of them had a higher  
4 percentage, and of course, that's the average of the  
5 smoker and average of the nonsmoker. If you went to  
6 the lower smokers and the higher passive smokers,  
7 they get closer together.

8 Q. And these would be nonsmokers who were  
9 exposed to secondhand smoke?

10 A. Yes. We actually measured their exposure to  
11 secondhand smoke, so what we also saw was the more  
12 exposure they had to secondhand smoke, the more of  
13 this chemical was in their blood.

14 We actually saw--for pregnant woman, we saw  
15 this chemical cross in the placenta and showing up  
16 in their baby's blood at birth, too, this  
17 carcinogen.

18 Q. Now, from a historical standpoint, looking  
19 at what you know about cigarette smoking on  
20 airplanes, were the flight attendants subjected to  
21 higher levels of exposure, say, in the 1970s than  
22 they were in the 1980s?

23 A. Oh, I would say almost certainly they were,  
24 yes.

25 Q. What do you base that on?

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1       A.   Based on the fact that in the general  
2 population, fewer people were smoking, so you would  
3 estimate the smaller percentage of people on a plane  
4 were smokers.

5           And also, you can see that if you look on a  
6 plane, the number of seats that were assigned to the  
7 smoking section kept declining through that period  
8 of time. They first started segregating smokers  
9 from nonsmokers in the early '70s, and what happened  
10 was first about half the plane was smoking and half  
11 was nonsmoking. But by the late '80s, there was  
12 just a handful of seats that were--less than a  
13 quarter of the seats were usually assigned to  
14 smoking. So just by the basic common sense, you  
15 would know that there's less being produced, and so  
16 the exposures would be less.

17          Also, just by having been on planes,  
18 certainly I know that they were much less smoking in  
19 the '80s than they were in the '70s.

20       Q.   Now, have you been asked by OSHA  
21 representatives to give testimony before OSHA?

22       A.   Yes, I have.

23       Q.   On what subjects?

24       A.   OSHA is considering regulating indoor air  
25 because of complaints about indoor air, and

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1 specifically, they asked me to speak about work  
2 place exposure to environmental tobacco smoke.

3 Q. And did you, in fact, give testimony?

4 A. Yes. I provided them with written comments  
5 and I did oral testimony.

6 Q. And did the tobacco industry representatives  
7 give testimony to OSHA as well?

8 A. They did indeed.

9 Q. And did they agree with you or disagree with  
10 you?

11 MR. WHITING: Objection, Your Honor.  
12 Hearsay.

13 THE COURT: No. Overruled.

14 A. I actually was present for some of that  
15 testimony and heard it and I read some of the  
16 testimony.

17 THE COURT: I don't want to know what  
18 the testimony is. They only asked you whether you  
19 agreed or disagreed.

20 THE WITNESS: Right. Yeah. And  
21 disagreed.

22 Q. And has that been the history of your  
23 relationship to the tobacco industry over the years  
24 on these issues of banning smoking and talking about  
25 secondhand smoke, whether it be on airplanes or in

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1 the work place?

2 A. Most definitely. I mean, I have entered  
3 most of these discussions as a scientist with a  
4 naive view of the world thinking that we're all  
5 interested in knowing the truth and trying to  
6 understand what is going on, and so when I see a  
7 misrepresentation or what I consider a scientific  
8 mistake, I try to say, "Look, folks, it's like this  
9 or look at this," and when I see it repeated over  
10 and over, I kind of realize after a while the point  
11 isn't to try to get the truth, but to confuse  
12 people, and so I've seen this over and over, yes.

13 Q. And who's been trying to confuse people?

14 MR. FURR: Objection, Your Honor.

15 THE COURT: I'll sustain it at this  
16 level.

17 Q. In connection with your testimony about  
18 OSHA, did you have occasion to prepare certain  
19 charts?

20 A. I did.

21 Q. I'm going to show it to counsel before I  
22 publish it.

23 (Thereupon, counsel and the court reporter  
24 approached the bench, and the following discussion  
25 was held outside the hearing of the jury:)

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1 MS. ROSENBLATT: This is slide 53. I  
2 just wanted to explain what it was.  
3 THE COURT: Okay. I'm not sure they  
4 can't read that from over there.  
5 MR. COFER: I don't think they can see  
6 it.  
7 THE COURT: I don't know if they can.  
8 MR. COFER: We'll do it this way.  
9 THE COURT: That's better.  
10 MR. WHITING: What are you doing with  
11 this?  
12 MR. ROSENBLATT: I wanted to ask her  
13 some questions about it.  
14 MR. WHITING: Based on the fact that  
15 she testified at OSHA in this use?  
16 MS. ROSENBLATT: First of all, they  
17 have this. They have had this for a long time. We  
18 presented it again with the materials she had  
19 because Mr. Furr was there at the OSHA hearing as  
20 well, and they have all of this material. They  
21 questioned her about it at the initial deposition.  
22 This was part of a slide presentation she  
23 made talking about the--these are just points that  
24 she is making, and this was part of the presentation  
25 there, you know, coincidentally, to discuss the

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1 serious points. It's demonstrative. We are not  
2 trying to put it in evidence. It was just simply  
3 going over some points that she made.

4 THE COURT: She is going to explain all  
5 of this?

6 MS. ROSENBLATT: Yes. She is going to  
7 explain it. That's the only point of putting it in.

8 THE COURT: All right.

9 (Thereupon, the following proceedings  
10 were held within the hearing of the jury:)

11 Q. Doctor, this is one of the charts that you  
12 prepared to assist you in terms of giving testimony  
13 to OSHA, correct?

14 A. Yes, it is.

15 Q. Okay. So why don't you read each sentence  
16 and say what you're talking about in each sentence.

17 A. This was the summary of a portion of my  
18 testimony, and that portion was about cigarette  
19 equivalents, and the first point I wanted to make is  
20 that in general, the use of cigarette equivalents  
21 has been used in a highly misleading manner.

22 Q. By who?

23 A. Originally, by the tobacco industry, and I  
24 had made various attempts to try to get that  
25 clarified and to get them to try to stop doing that,

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1 but it became clear that wasn't the interest, mostly  
2 because they used it based on nicotine, which is not  
3 the chemical of concern, and it's not relevant for  
4 evaluating the health effects, which is the second  
5 point.

6 So, when, basically, it wasn't possible  
7 really to come to conclusions, I said, "Okay. If we  
8 are going to do cigarette equivalents, let's try to  
9 do it in a way that demonstrates the range of  
10 cigarette equivalents you can get," and by cigarette  
11 equivalents--may I take a minute to explain that  
12 idea?

13 Q. Sure.

14 A. Because it's kind of confusing. People  
15 always come to me and say, "My work is like I smoked  
16 a pack a day of something," because they feel like  
17 they are breathing so much smoke, and so what I'm  
18 really trying to say is let's take a particular  
19 chemical and say you get as much of this chemical as  
20 if you smoked one cigarette or half a cigarette or  
21 two cigarettes or whatever. So that's what I'm  
22 working on: How many cigarettes would you have to  
23 smoke to get that chemical, but because they are in  
24 all these different proportions from chemical to  
25 chemical, it doses does vary.

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1           So, I said, "Okay, if we are going to look  
2 at that, and we really don't know what chemical it  
3 causes, lung cancer, we don't if it's 3-4-5  
4 trimethal-chicken wire, we don't know what it is, we  
5 may as well say okay, let's look at the range. So  
6 if we look at some of those chemicals, we can say  
7 that--in this case I was talking about work place  
8 exposures--that nonsmokers in the work place can be  
9 exposed to as much of one of those carcinogens as if  
10 you smoked half a pack of cigarettes a day. And  
11 that same may be true for 3-4-5 trimethal-chicken  
12 wire.

13       Q.   Is nicotine misleading because nicotine is  
14 not a carcinogen?

15       A.   Well, it's misleading for many reasons.  
16 Partly it's clear that it does not in and of itself  
17 have any importance in any discussion about cancer.  
18 And secondly, it's misleading because, in fact, the  
19 proportion of nicotine that you get is very small.

20           So, what happens is in the papers that I've  
21 seen published by people who work for the tobacco  
22 industry, you'll see they have measured what anyone  
23 would consider a very smoky situation, something  
24 similar to being in a smoky bar, and say, "This has  
25 the equivalent of smoking .01 cigarettes." Well,

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1 nobody really believes that, and certainly the  
2 carcinogens you get aren't like smoking .01  
3 cigarettes. So it's clearly a misleading statement.

4 Q. Dr. Hammond, like it says, Hammond Slide 53,  
5 does that mean you were showing slides to the OSHA  
6 people as you were testifying?

7 A. Yes.

8 Q. When did you give that testimony?

9 A. In September of '94.

10 Q. '94. So, in other words, this slide and  
11 this presentation by you is obviously prepared for  
12 that testimony; had nothing to do with this  
13 lawsuit?

14 A. That's correct. That was prepared a long  
15 time ago. It was basically designed to assist OSHA  
16 in their thinking about passive smoking in the work  
17 place.

18 MR. FURR: We need to go side bar.

19 (Thereupon, counsel and the court reporter  
20 approached the bench, and the following discussion  
21 was held outside the hearing of the jury:)

22 THE COURT: These are the slides.

23 MR. ROSENBLATT: No. This is something  
24 different. This is a full-page ad that was taken in  
25 many publications. This the Reynolds ad?

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1 MS. ROSENBLATT: I believe so.

2 MR. ROSENBLATT: The Reynolds, and I  
3 simply want to ask now in follow-up: Is this  
4 misleading? She talks about the whole purpose of  
5 this ad is to tell the American people: "Don't  
6 worry about secondhand smoke because the amount of  
7 secondhand smoke you get is tiny; it's a minuscule  
8 amount. It's not a big deal." And I wanted to ask  
9 her if she considers this misleading, and why, to  
10 tie it into the whole.

11 MS. ROSENBLATT: This is the cigarette  
12 equivalents that she was referring to in terms of  
13 the nicotine measurement.

14 THE COURT: Do we have a paper copy of  
15 that?

16 MS. ROSENBLATT: Yes.

17 MR. WHITING: Your Honor, we would  
18 object to this on relevance grounds and on  
19 foundation grounds. This is not in evidence. The  
20 witness has no basis to authenticate it. This was  
21 published in 1994 well after the events of this  
22 lawsuit.

23 He has already elicited from her the  
24 testimony that the use of nicotine by the tobacco  
25 industry is misleading. She already testified to

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1 that. That is her opinion. She has no basis to  
2 testify with respect to whether or not this  
3 advertisement is misleading.

4 And the other thing I would ask the Court is  
5 to admonish counsel, and if necessary the witness,  
6 not to be volunteering hearsay opinions and  
7 characterizations of the tobacco industry which he  
8 she has now done two or three times in response to  
9 questions.

10 THE COURT: How do you want her to  
11 refer to it?

12 MR. WHITING: Well, what I want is  
13 factual testimony about things she is qualified to  
14 testify about.

15 MR. HARDY: Hugh, why didn't we let the  
16 Judge deal with the first issue of that document  
17 because I want to address the second issue.

18 THE COURT: Let me just see what this  
19 says.

20 MS. ROSENBLATT: This is Plaintiff's  
21 820. We would not put it in.

22 MR. FURR: Last night we asked them if  
23 there were any exhibits with Dr. Hammond and they  
24 told us no.

25 MS. ROSENBLATT: We are not putting  
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1 this in. This is just for right now demonstrative  
2 purposes. We're not putting this into evidence with  
3 this witnesses.

4 MR. WHITING: Then how can she testify  
5 about it?

6 MR. HARDY: Your Honor, if this was not  
7 disclosed as an exhibit, they can't properly use it.  
8 It's not demonstrative evidence. They are not  
9 trying to illustrate her testimony with this  
10 document. They are using it like a piece of  
11 evidence. They are having her testify and give an  
12 opinion about something that they didn't put on  
13 their list of exhibits to use for this witness, and  
14 before you even get to issues about competence, they  
15 haven't properly disclosed it.

16 MS. ROSENBLATT: Well, that's been here  
17 for the last week. Excuse me. I was speaking right  
18 now to respond to that. We had presented that to  
19 Your Honor with regard to Dr. Siegel's testimony.  
20 You didn't feel that he was appropriate to comment  
21 upon that. This has been here. This is no  
22 surprise. Yes, I should have mentioned this one  
23 here, but I don't think there is any prejudice. I  
24 really don't think so.

25 MR. WHITING: For all the reasons that  
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1 it was not appropriate for Dr. Siegel to testify  
2 about it, it's not appropriate for this witness to  
3 testify, but she also made no indication in her  
4 deposition that she had any testimony about whether  
5 or not advertising of my client or any other tobacco  
6 company was or was not misleading. There is no  
7 basis in anything she has done that provides a  
8 foundation for her to testify about this ad.

9 THE COURT: Well, I'm not so sure about  
10 the ad, but she does talk about how you calculate  
11 cigarette equivalents and where there is a fallacy.  
12 There's three areas here that talk about how you  
13 calculate the equivalent. And they go on to explain  
14 there are many ways to calculate cigarette  
15 equivalents. Let's see. So if you want to compare  
16 and take a look at this and have her testify about  
17 it, it would have to be a piece of evidence.

18 MS. ROSENBLATT: We would want to put  
19 it into evidence, yes.

20 THE COURT: It's really not  
21 demonstrative because demonstrative explains how she  
22 does it. So I can't see it as demonstrative.

23 MS. ROSENBLATT: We are planning to put  
24 it into evidence.

25 THE COURT: What is the prohibition of  
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1 it coming into evidence at this stage? It doesn't  
2 necessarily have to come into evidence based upon  
3 this deposition. It can come into evidence for any  
4 other reason. So what's prohibiting it from coming  
5 into evidence? No. 1, you are not taken by surprise  
6 because you've seen it before, so it doesn't come in  
7 as a surprise thing. There is not a surprise. What  
8 else?

9 MR. HARDY: But, Your Honor, what that  
10 means essentially is they have gone to total trial  
11 by surprise. Plaintiff puts on a witness. They say  
12 they don't have exhibits and then they just show the  
13 witness exhibits and have them talk about what they  
14 are and render opinions and don't offer them into  
15 evidence.

16 THE COURT: You can take any of the  
17 other exhibits like anybody else has that are  
18 already into evidence.

19 MR. WHITING: Your Honor, there is no  
20 way that this witness can testify with respect to  
21 this, and what they want to do is make an entirely  
22 prejudicial comment about this.

23 THE COURT: No. I disagree. This  
24 thing makes some definitive statements here. She  
25 can testify whether she thinks in her opinion that

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1 is right or wrong.

2 MR. WHITING: She can testify to her  
3 opinion about whether as a matter of science it's a  
4 proper way to calculate.

5 THE COURT: Yes.

6 MR. WHITING: But she has no expertise  
7 to testify about advertising or authenticate this.

8 THE COURT: The question is whether  
9 these statements in here are accurate based on her  
10 scientific principle. It says here that living with  
11 a smoker you will on the average be exposed to  
12 secondhand smoke of the equivalent of smoking  
13 probably one and one-half cigarettes. If you just  
14 read that to her, without making reference to the  
15 ad, she can explain whether that's right or wrong.

16 MR. MOSS: Well, she can explain in her  
17 opinion.

18 THE COURT: Yes, in her opinion, sure.  
19 And she can explain why. So if one says, "Look.  
20 This is an ad. This is what they say. Okay. Is  
21 the information in here true in your scientific  
22 opinion?" And she can have an opinion yes or no.

23 MR. WHITING: What he wants her to do  
24 is ask her is it misleading and have her  
25 characterize its contents as to whether or not it's

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1 misleading. She has no competence to do that. She  
2 has no basis to do that. There is no testimony with  
3 respect to this ad.

4 THE COURT: Let's put it this way. If  
5 she says the numbers are wrong based upon scientific  
6 principle and that's scientific principle, and under  
7 the circumstances this information is wrong, if she  
8 stops right there---

9 MR. MOSS: That's all he can say.

10 THE COURT: He can argue at the end of  
11 the trial it was totally misleading.

12 MR. WHITING: He can argue that.

13 MR. FURR: I don't believe she is going  
14 to say these numbers are wrong. She is going to say  
15 that she would have done it a different way and--

16 THE COURT: Fine.

17 MR. FURR: --and this is an incorrect  
18 way to present the information.

19 THE COURT: Fine.

20 MR. HARDY: Just one more time. I  
21 think we made the point, but the problem is, we  
22 can't claim surprise on any document on this theory  
23 because they are all on the exhibit list?

24 THE COURT: Sure.

25 MR. HARDY: But what Your Honor seems

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1 to be saying essentially is that as long as they  
2 weren't going to actually offer an exhibit into  
3 evidence during the testimony of the witness, they  
4 can ask a witness about any document on the list  
5 they want to without giving us any disclosure in  
6 advance about that, and they can ask the witness to  
7 testify about it.

8 The whole purpose of the disclosure rule is  
9 for us to know what exhibits witnesses are going to  
10 be asked about.

11 MR. WHITING: The other point I want to  
12 make sure is that I'm not aware of any testimony the  
13 plaintiffs have that can tell the jury when the ad  
14 was published, where, at what time it was published  
15 or who saw it.

16 THE COURT: It wouldn't make any  
17 difference.

18 MR. WHITING: It would in terms of  
19 relevance. There has to be someone who was mislead.  
20 If it has no impact on the flight attendants, it  
21 can't be relevant to this case.

22 THE COURT: Okay. Your problem is  
23 different than their problem. You're worried about  
24 whether or not this is an authentic ad. Okay.

25 MR. ROSENBLATT: He knows it's  
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1 authentic.

2 THE COURT: The title on this thing is  
3 from the Wall Street Journal, May 23, '94, which is  
4 handwritten on this piece of paper, which I don't  
5 know about. So we don't know if that was ever  
6 produced or not based upon the document itself as it  
7 exists, and you don't know through her or you can't  
8 prove that through her. And it's not in evidence  
9 yet. And he has a point. He really does.

10 I think if you want to ask her these  
11 following questions: If it was said that one, two  
12 and three, would that be in your opinion  
13 scientifically accurate or how would you do it,  
14 without showing her the document.

15 MR. ROSENBLATT: Without showing this  
16 to the jury?

17 THE COURT: Yes. And then later on you  
18 can tie it up if you can get it in.

19 MR. HARDY: Could you bring up--I want  
20 to make a record on an entirely different point.  
21 You need to listen to this, Stan. This witness has  
22 already on a couple of occasions characterized  
23 tobacco companies or the tobacco industry--

24 THE COURT: Industry.

25 MR. HARDY: --the industry's behavior

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1 as being non-interested in the truth, but interested  
2 in confusing people. She has in essence testified,  
3 volunteered something that she is not qualified to  
4 do, even if it was responsive to a question, that  
5 is, to discuss the motives of the people involved.

6 Now, she can testify, if she's properly  
7 qualified, that a statement is not scientifically  
8 sound, but she cannot get in the heads of the people  
9 involved and say, "They were lying. They intended  
10 to misrepresent," and that's what she has said two  
11 times.

12 THE COURT: I didn't hear any  
13 objection, either.

14 MR. HARDY: No, there wasn't. There  
15 wasn't any objection.

16 THE COURT: I can't help that.

17 MR. HARDY: She volunteered the  
18 statement twice.

19 THE COURT: I agree with you.

20 MR. HARDY: And I'm not asking anything  
21 be done to erase that record. What I'm asking is  
22 that counsel tell this witness outside the hearing  
23 of the jury not to volunteer motive or state of mind  
24 of the tobacco companies any more because---

25 THE COURT: I don't have any problem

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1 with that.

2 MR. HARDY: Okay.

3 THE COURT: So be careful of the way  
4 you ask the question.

5 MR. MOSS: I think she needs to be  
6 told.

7 MR. HARDY: I'm not being critical of  
8 Mr. Rosenblatt in that regard because he didn't ask  
9 any questions to call for that. She volunteered.

10 THE COURT: Let's take a break anyway.  
11 They have been sitting here and looking at us like  
12 crazy. You can talk to her in between the break.

13 (Thereupon, the following proceedings  
14 were held within the hearing of the jury:)

15 THE COURT: All right. I understand  
16 you need a break anyway. Okay. Don't discuss the  
17 case, folks.

18 (The jury retired from the courtroom and the  
19 following proceedings were had:)

20 THE COURT: During your testimony, I'd  
21 like you to refrain from making any comment  
22 vis-a-vis motives of, say, the tobacco industry.

23 You can testify about scientists, but you  
24 can't get into their heads.

25 THE WITNESS: Can I -- Is it acceptable

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1 to say that the effect of something is misleading  
2 whether or not that was the intention.

3 THE COURT: Scientifically.

4 THE WITNESS: Yes. Even if the  
5 intention was or was not --

6 THE COURT: Yes, but we don't attribute  
7 a motive or any intent, but if it's a scientific  
8 fact which buy itself is a misleading fact -- if you  
9 think so. It may turn out not to be.

10 We will take a recess. You must not discuss  
11 the testimony with anybody, including attorneys.

12 MR. MOSS: Judge, before you bring in  
13 the jury, can we clarify one thing?

14 THE COURT: Yes, sir.

15 MR. MOSS: When we left the side bar,  
16 the last thing we did -- it was my understanding,  
17 and I checked with everyone else, that  
18 Mr. Rosenblatt -- or Your Honor was going to  
19 instruct the witness that she couldn't testify as to  
20 if something was misleading, but she could testify  
21 in your opinion is this scientifically correct or  
22 not, and I'm not sure --

23 THE COURT: Scientifically misleading  
24 in the sense that the facts may be wrong  
25 scientifically but no motive.

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1 MR. MOSS: The problem I have with the  
2 word misleading, if she wants to say it was  
3 misleading, to me, obviously, I can't argue with  
4 that; but once you use the term misleading other  
5 than to yourself, you're talking about to others,  
6 and that was the exact argument that we made and I  
7 thought Your Honor had --

8 THE COURT: The difference was  
9 attribution is what the difference was. There is no  
10 attribution. We are not making attribution toward  
11 "the tobacco industry."

12 We are talking in scientific terms because  
13 that's what she is -- she is a scientist. She will  
14 talk about scientific facts and scientific terms,  
15 and if this is what it is and it's presented to her,  
16 she can assess it as to whether it is misleading,  
17 whether it isn't misleading, whether it's accurate  
18 or inaccurate on a scientific basis.

19 MR. MOSS: But misleading to who?

20 THE COURT: That's your problem.  
21 You're worried about the word misleading. I'm  
22 sorry.

23 MR. MOSS: It is but it's also our  
24 problem because we are dealing with rules of  
25 evidence and what the witness can and cannot testify

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1 to, and all I'm saying, Your Honor, there is an easy  
2 way to cure it so we don't have to stand on the head  
3 of a pin with a word is it scientifically correct or  
4 not in your opinion, just leave out this word  
5 misleading.

6 THE COURT: I'm sorry, I'm not going to  
7 apply that argument. Okay. Let's bring out the  
8 jury.

9 (The jury entered the courtroom and the  
10 following proceedings were had:)

11 THE COURT: Have a seat, folks. Maybe  
12 we need a sidebar. Maybe we came back a little  
13 prematurely.

14 MR. ROSENBLATT: I thought I  
15 understood --

16 THE COURT: Well, I want to make sure.

17 (The attorneys and the court reporter  
18 approached the bench and the following proceedings  
19 were had outside the hearing of the jury:)

20 THE COURT: Now, the question is -- I  
21 see you have this document. What are you going to  
22 do with it?

23 MR. ROSENBLATT: Not identify the  
24 document. Not say it's an ad of the tobacco  
25 company.

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1 THE COURT: You're not going to make  
2 reference to the tobacco company?  
3 MR. ROSENBLATT: I'm not going to make  
4 reference to the tobacco company.  
5 THE COURT: Just read these statements?  
6 MR. ROSENBLATT: Yes, plus the  
7 statements, I was going to read the title. If you  
8 don't want me to read the title, I won't read the  
9 title.  
10 THE COURT: What are you going to read?  
11 MR. ROSENBLATT: Starting here and then  
12 I'm going to go --  
13 THE COURT: How are you going to say --  
14 With reference to this document, how are you going  
15 to attribute the document?  
16 MR. ROSENBLATT: I won't attribute it.  
17 THE COURT: But if you're going to read  
18 this, it would have to be as to some attribution as  
19 to where it came from.  
20 MR. ROSENBLATT: I'd love to.  
21 THE COURT: But I'm not going to let  
22 you do it this way. Just go into the three  
23 points --  
24 MR. ROSENBLATT: Without the  
25 background?

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1 THE COURT: Yes, without the  
2 background, and say is this scientifically correct  
3 or do you agree with it?

4 (The following proceedings were had within  
5 the hearing of the jury:)

6 Q. (By Mr. Rosenblatt) Okay. Dr. Hammond, I'm  
7 going to ask you -- I'm going to read a couple of  
8 statements to you and then ask you a question about  
9 them, and this really relates to the overall subject  
10 of cigarette equivalents which we have been  
11 discussing.

12 "In a month, a non-smoker living with a  
13 smoker would, on average, be exposed to secondhand  
14 smoke equivalent to smoking approximately one and a  
15 half cigarettes."

16 Should I repeat it?

17 A. I heard it.

18 Q. Is that scientifically sound?

19 A. I don't think that tells much of a  
20 scientific story of what is going on, no.

21 Q. Now listen to this statement.

22 "In a month, a non-smoking waiter who works  
23 eight hours a day, five days a week in a restaurant,  
24 would on the average be exposed to secondhand smoke  
25 equivalent to smoking about two cigarettes."

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1           Is that scientifically sound?

2       A.   Not really.

3       Q.   Why not?

4       A.   Well, if you recall my conversation about  
5 secondhand smoke, there are many chemicals in it.  
6 We haven't actually talked about this in detail, but  
7 there are hundreds and thousands of different  
8 compounds in cigarette smoke, and we have only done  
9 -- relatively little work on a handful of those; but  
10 of those, we know that some of the really toxic ones  
11 are given off a lot more in sidestream than in  
12 mainstream, as I said.

13           And so if you wanted to say how much  
14 cigarette smoke is someone exposed to and compare it  
15 to smoking, you'd want to look at the more toxic  
16 materials, and every measurement I've ever taken,  
17 indicates to me that people who are passively  
18 exposed are exposed to a lot more than the  
19 equivalent of one or two cigarettes a month.

20           For instance, the blood tests that we did,  
21 in those tests, people who lived with smokers didn't  
22 have the equivalent of one cigarette a month.

23           They had as much of this carcinogen in their  
24 blood as if they smoked a few cigarettes a day, so  
25 that definitely doesn't make any sense with anything

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1 of my understanding of passive smoking.

2 Q. Okay. I want you to assume that the  
3 calculations that I gave you are based upon a --  
4 relate to average smoking area measurements of  
5 nicotine?

6 A. So average in a restaurant and average at  
7 work -- and average at home, I guess. Average at  
8 restaurant and home.

9 Q. Correct.

10 A. Okay.

11 Q. Is that scientifically sound basis upon  
12 which to measure cigarette equivalents in terms of  
13 exposure to nonsmokers?

14 A. That characterization of the -- of that  
15 passive smoking level doesn't fully convey what we  
16 know from science about what the person is exposed  
17 to.

18 Q. Okay. And how about this statement?

19 "In a month in a modern office where smoking  
20 was permitted, a non-smoker sharing an office with a  
21 smoker would on average be exposed to the equivalent  
22 of smoking about one and a quarter cigarettes."

23 A. That just, again, does not fit any of my  
24 professional experience and any of my scientific  
25 knowledge.

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1 Q. Are those statements, in your opinion,  
2 scientifically misleading?

3 A. Yes. They mislead as to the science -- as  
4 to what is going on and what we know about exposure.

5 Q. When you are assessing the exposure of  
6 nonsmokers to secondhand smoke, what role does the  
7 activity of the non-smoker play in the overall  
8 assessment?

9 A. It's actually -- it can be very important if  
10 you're really trying to look at how much of any work  
11 place has or any hazard is taken into the body.

12 So in other words, sleeping -- lying in bed  
13 sleeping and there is a certain ozone exposure or  
14 any other toxic chemical, it hurts you less than if  
15 you're out there running.

16 Anyone who has tried to run on a very  
17 polluted day would know that. You run, you breathe  
18 fast, you breathe a lot in, and so there is more  
19 toxic material that comes into your body; so if one  
20 is looking at really different activity levels in a  
21 situation -- a work place situation where there are  
22 hazards, one often wants to take that into account  
23 in looking at how much a person is really being  
24 exposed to.

25 Q. What is the activity level of flight  
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1 attendants on an average flight?

2       A.     Basically it's -- they actually are working  
3 at a rate that may not be obvious. If you're not  
4 really paying attention, it may seem like a simple  
5 kind of job; but in fact, a lot of times they have  
6 to carry trays back and forth.

7             They are moving back and forth, up and down  
8 the rows delivering trays of food or drinks, and  
9 bending down to pick out trays out of something and  
10 lifting them up and moving.

11            They are carrying -- they are not heavy  
12 loads, but they are moderate loads that actually put  
13 a strain on the system and lead to heavier  
14 breathing; and in some cases, particularly in the  
15 past before they had these carts, they moved up and  
16 down the aisleways.

17            Before those carts, they actually were  
18 carrying food all the way down the length of the  
19 plane back and forth; so there would be actually a  
20 lot of walking back and forth and back and forth and  
21 back and forth and almost running. They called it  
22 running, in fact. It was the term they used for it.

23       Q.     And how does a higher activity rate relate  
24 to the amount of secondhand smoke exposure the  
25 non-smoker is getting?

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1       A.   Clearly the more you breathe, the more your  
2 exposure.

3           Actually, one of the interesting things is  
4 kind of surprising to people is the tremendous  
5 ability of the lungs -- the range of breathing you  
6 can do; so from your resting state to maybe your  
7 maximal breathing state can be over 10 fold greater.  
8 You can actually breathe more than 10 times air per  
9 minute when you're pushing as hard as you can.

10          I wouldn't say flight attendants were  
11 pushing as hard as they can, but definitely  
12 increasing their breathing range substantially when  
13 they are running back and forth, back and forth.

14          Particularly compared to passengers who are  
15 sitting or people who are sitting.

16       Q.   Are you involved in any research, at the  
17 present time, relating to secondhand smoke, whether  
18 it be adults, children?

19       A.   Yes, I am.

20       Q.   Tell us about that.

21       A.   I'm involved in some studies looking at  
22 children's exposure to secondhand smoke,  
23 particularly in low income families and helping the  
24 families to find ways to reduce their children's  
25 exposures.

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1           Sometimes it's helped if people want to quit  
2 smoking, to help them quit smoking; but if they  
3 don't want to quit smoking but still want to protect  
4 their children's health, to help them know ways to  
5 reduce the child's exposure while they continue to  
6 smoke.

7           So we are going into homes and actually  
8 helping people to do that and trying to see if that  
9 works.

10          Q.   Now, I believe you said you testified before  
11 OSHA in 1994?

12          A.   Yes.

13          Q.   Okay. Has OSHA come out with final  
14 recommendations on the subject of secondhand smoke  
15 in the work place?

16          A.   They have not. They had proposed the  
17 testimony was in response to a proposed rule they  
18 had put in the Federal Register.

19               That's the way you make a rule in OSHA is  
20 you say to the world -- first you say to the world,  
21 I'm interested in making rule, does anyone have any  
22 information, so people send information.

23               Then OSHA looks through that information and  
24 says, what should we do for a level. They analyze  
25 it very carefully with their scientists. They come

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1 up with a regulation they think will protect  
2 workers' health, then they publish that in the  
3 Federal Register and say, okay, world, any comments?  
4 Does this make sense, and then there is a period of  
5 time people can submit written comments, and a  
6 period of time for oral comments. They are called  
7 hearings.

8 Then usually what happens, OSHA takes those  
9 results, digests all that information and then makes  
10 a final rule. They publish the Federal Register and  
11 it becomes the law.

12 Q. What is taking so long --

13 MR. FURR: Objection. Excuse me, Doctor.  
14 May we approach, Your Honor?

15 THE COURT: Okay.

16 (The attorneys and the court reporter  
17 approached the bench and the following  
18 proceedings were had outside the hearing of the  
19 jury.)

20 MR. FURR: Your Honor, I guess this  
21 testimony could be being offered for one of two  
22 purposes, one is to show that the tobacco industries  
23 have exercised their right to participate in the  
24 administrative process, and Your Honor already ruled  
25 that is not a proper subject for testimony.

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1           The second is to suggest that the OSHA rule  
2 making has some relevance to the issue of secondhand  
3 smoke and health.

4           I believe that there is a problem under 403  
5 there because the OSHA rule -- so any relevance  
6 there might have would be substantially outweighed  
7 by the prejudice of referring to the rule.

8           THE COURT: My understanding is the  
9 report is not yet produced.

10           MR. ROSENBLATT: Correct.

11           THE COURT: So what is she going to  
12 testify about?

13           MR. ROSENBLATT: The reason is because  
14 in the history of OSHA, to her understanding, they  
15 have just inundated -- the tobacco companies just  
16 don't stop.

17           They submit materials that -- that's the  
18 reason for the delay.

19           MR. MARTINEZ: I thought we already had  
20 a rule.

21           THE COURT: So the jury is still out on  
22 the information; is that it?

23           MR. ROSENBLATT: She doesn't believe  
24 the jury is out on the information. She believes  
25 that OSHA has reached the conclusions.

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1 THE COURT: She can't speak for OSHA.  
2 Okay. I'll sustain the objection.  
3 (Thereupon, the following proceedings  
4 were held within the hearing of the jury:)  
5 Q. (By Mr. Rosenblatt) In terms of these OSHA  
6 hearings on the issue of secondhand smoke, what  
7 group or entity has submitted the most materials?  
8 MR. FURR: Objection, your Honor.  
9 THE COURT: Overruled.  
10 THE WITNESS: The tobacco industry. I  
11 heard stories that the --  
12 MR. FURR: Objection, Your Honor.  
13 THE COURT: From your knowledge of the  
14 information, and we have to go by your knowledge.  
15 Q. (By Mr. Rosenblatt) From your knowledge,  
16 has any group or entity submitted more materials,  
17 asked for more additional hearings from OSHA than  
18 the tobacco industry?  
19 MR. FURR: Objection, Your Honor. No  
20 foundation.  
21 THE COURT: If she knows. I don't know  
22 if she knows.  
23 Q. (By Mr. Rosenblatt) If you know.  
24 THE COURT: Do you have any information  
25 on it?

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1 MR. MOSS: Also object on relevancy.

2 THE WITNESS: What do I know. Do I  
3 know -- If I'm told by somebody from OSHA, does that  
4 count or is it actually what I have seen?

5 THE COURT: Actually what you've seen,  
6 otherwise it would be hearsay.

7 THE WITNESS: I received a substantial  
8 amount of material from OSHA -- I was a consultant  
9 to OSHA to help them understand the material they  
10 received, and I received a substantial amount of  
11 material from OSHA. Many many many inches, if not a  
12 few feet, and the vast vast majority of that was  
13 from the tobacco industry.

14 Q. (By Mr. Rosenblatt) And you've seen that  
15 with your own eyes?

16 A. And consultants. When I was serving on the  
17 -- OSHA not EPA.

18 Q. Consultants for the tobacco industry?

19 A. I'm sorry?

20 Q. Consultant, when you said --

21 A. And consultants for the tobacco industry,  
22 yes.

23 Q. Now, the rule that was originally  
24 promulgated where OSHA promulgates a rule and then  
25 they ask interested parties to state their opinions,

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1 what was the rule?

2 MR. FURR: Objection, Your Honor.

3 MR. WHITING: May we approach?

4 THE WITNESS: That I do know. I've  
5 read that.

6 Q. (By Mr. Rosenblatt) What was the original,  
7 you know, incitement for the hearings? What were  
8 they all about?

9 THE COURT: I'm not sure where you're  
10 going with this.

11 MR. ROSENBLATT: I'm ending with that.  
12 If I get --

13 THE COURT: I guess we are going to  
14 have to talk about it, please. I'm sorry, folks.  
15 We are going to have to have another side bar.

16 (The attorneys and the court reporter  
17 approached the bench and the following proceedings  
18 were had outside the hearing of the jury.)

19 THE COURT: What is it you're going to  
20 do with this? Read the question back?

21 (The record was read by the court reporter.)

22 MR. ROSENBLATT: That was a bad word.

23 The original reason --

24 THE COURT: For the hearings of --

25 MR. ROSENBLATT: -- of OSHA.

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1 THE COURT: What is the objection?

2 MR. WHITING: The objection is  
3 relevance, lack of foundation, lack of  
4 qualifications. This woman has --

5 MR. HARDY: And hearsay.

6 MR. WHITING: And hearsay. The woman  
7 has not worked for OSHA. She has no reason to know  
8 why OSHA commenced the hearings. She was a witness  
9 who testified in the hearings. She has no basis  
10 other than her position as a witness.

11 THE COURT: Was she a consultant for  
12 OSHA at the time?

13 MR. ROSENBLATT: Yes.

14 MR. FURR: No.

15 MR. ROSENBLATT: OSHA asked her to --  
16 She testified before OSHA because OSHA asked her,  
17 invited her.

18 MR. FURR: She was not a consultant to  
19 OSHA in the creation of the proposed rule. She was  
20 retained by OSHA after the notice of a proposal rule  
21 making was put out, and she was retained to help  
22 them explain the rule.

23 THE COURT: They are looking to make a  
24 rule. They want to find out information. They ask  
25 her to give the information, obviously, about a

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1 certain subject, right?

2 MR. ROSENBLATT: Yes.

3 THE COURT: What manner is this  
4 information passed on to her? Do they directly tell  
5 her that this is what we are looking for and what is  
6 your view?

7 MR. MARTINEZ: She said she read it.

8 THE COURT: Is that what you're looking  
9 for in this testimony?

10 MR. ROSENBLATT: Yes.

11 THE COURT: So we need to know what her  
12 understanding of what her role was.

13 MR. ROSENBLATT: And also the rule --  
14 what was the purpose of all the hearing. We heard  
15 the tobacco industry was submitting material. What  
16 was it all about.

17 THE COURT: I really think you need  
18 somebody from OSHA to come up and say something  
19 about that, but I think you can ask her what her  
20 understanding or what her -- what she was asked to  
21 do and whether it was explained to her why. Okay.

22 MS. ROSENBLATT: Before everyone --

23 MR. MOSS: So that we don't have to get  
24 up in front of the jury, we object to that question  
25 and that line of questioning based upon hearsay,

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1 relevance and lack of foundation and competence.

2 THE COURT: You're not getting into any  
3 substance at this point.

4 MS. ROSENBLATT: I wanted to mention,  
5 we did get -- robin brought in -- faxed to us the ad  
6 with the Wall Street Journal, so in terms of --

7 MR. WHITING: That is hearsay by  
8 itself.

9 MS. ROSENBLATT: We would like to  
10 introduce it.

11 THE COURT: Everything in the world is  
12 hearsay other than what I see with my own eyes, and  
13 I don't believe anything that I see.

14 MR. WHITING: I understand, but there  
15 are rules of evidence, and some day they have to  
16 apply in this case.

17 THE COURT: I don't know about that.

18 MS. ROSENBLATT: We would like to  
19 introduce this and it was a little disjointed in  
20 terms of presenting it and --

21 THE COURT: I'm not sure you can do it  
22 through her at all.

23 (Thereupon, the following proceedings  
24 were held within the hearing of the jury:)

25 Q. (By Mr. Rosenblatt) Dr. Hammond, what were

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1 you asked to do by OSHA?

2 A. OSHA asked me to first present my own  
3 results of surveying passive smoking in the work  
4 place, both in written comments and in oral  
5 testimony, the hearing.

6 They also asked me to help evaluate the  
7 testimony that had been submitted by others, and in  
8 fact, to help in some of the cross examination at  
9 one point of one of the witnesses.

10 Q. The focus of the OSHA hearings was the  
11 health effects, if any, of passive smoke, secondhand  
12 smoke on workers, nonsmokers?

13 MR. MOSS: Leading question.

14 THE COURT: It is leading, sustained.

15 THE WITNESS: I'm sorry.

16 THE COURT: It's leading. Don't answer  
17 it.

18 Q. (By Mr. Rosenblatt) So in terms of what  
19 OSHA asked you to do, and in terms of the materials  
20 the tobacco industry was submitting, the question  
21 under consideration was what?

22 A. The question was what were the exposures in  
23 the work place and how did those exposures compare  
24 to exposures in settings where the adverse health  
25 effects of passive smoking had already been

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1 demonstrated and are well accepted.

2 Q. Okay.

3 A. So in other words, that gives them a way to  
4 think about -- you know, I give you a number, what  
5 does the number mean; so it's trying to take that  
6 number and put it in context and say how does that  
7 relate to places where we know passive smoking is  
8 hazardous.

9 Q. Dr. Hammond, what is the Congressional  
10 Research Service?

11 A. It's an arm of the Library of Congress and a  
12 service to provide information to Congress.

13 Q. If anything was published by the  
14 Congressional Research Service on the issue of  
15 secondhand smoke, were any physicians or Ph.D.s or  
16 scientists involved in that, to your knowledge?

17 A. The documents that I'm aware of may have had  
18 a Ph.D. in economics involved, but not in  
19 environmental health sciences or medicine or public  
20 health or anything like that. In fact, had not even  
21 undergrad training in that or any training or  
22 experience.

23 Q. I would like for you to name the various  
24 groups of independent scientists who agree that  
25 secondhand smoke causes disease.

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1 MR. MOSS: Objection, Your Honor.

2 MR. FURR: Objection, hearsay.

3 MR. MOSS: Absolute hearsay.

4 THE WITNESS: This is not hearsay.

5 I've read --

6 MR. MOSS: Fortunately, you're not  
7 going to rule on the objections.

8 THE WITNESS: I don't get to rule?

9 MR. MOSS: Maybe you will.

10 THE COURT: I'll tell you, I won't do  
11 the science if you don't do the law. I'll have to  
12 sustain it.

13 Q. (By Mr. Rosenblatt) In the American  
14 scientific community of which you're a part, is  
15 there any controversy today about the health effects  
16 and the health risks of secondhand smoke on  
17 nonsmokers?

18 MR. MOSS: Your Honor, it is exactly  
19 the same question that you just sustained.

20 THE COURT: No, it's not.

21 MR. MOSS: Except in a collective  
22 basis.

23 THE COURT: No, it's not the same  
24 question at all. Overrule the objection.

25 THE WITNESS: So I can answer it?

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1 THE COURT: You may answer that one.

2 THE WITNESS: In the scientific  
3 community today, there is general agreement about  
4 many of the adverse health effects of passive  
5 smoking. And then some of which there is still some  
6 controversy and more to be learned, but many effects  
7 such as lung cancer, heart disease, and effects on  
8 children that are well accepted in the scientific  
9 community.

10 It's just other forms of cancer where  
11 there is less certitude.

12 Q. But on lung cancer and heart disease, there  
13 is no controversy?

14 MR. MOSS: Objection. It's leading,  
15 Your Honor.

16 THE COURT: That's leading.

17 THE WITNESS: On lung cancer --

18 THE COURT: No, that's all right.

19 THE WITNESS: On lung cancer --

20 THE COURT: Got to wait for a question.

21 Q. (By Mr. Rosenblatt) What is the status of  
22 the scientific consensus in this country as it  
23 relates to the cause and effect relationship between  
24 secondhand smoke and lung cancer and between  
25 secondhand smoke and heart disease?

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1 MR. MOSS: Objection, Your Honor.  
2 It's, number one, it's already been asked and  
3 answered; and secondly, it's hearsay.

4 THE COURT: No, I disagree with you  
5 there. If you can answer the question within your  
6 field and your realm of expertise.

7 THE WITNESS: I think there is a very  
8 clear consensus that passive smoking causes lung  
9 cancer in nonsmokers, and I think in the scientific  
10 community in general. Very clear.

11 I think that lung cancer -- I mean, so lung  
12 cancer is absolutely clear. I think that heart  
13 disease is accepted by most people who have looked  
14 at the issue, but I think it's a little less well  
15 known throughout the whole field, but I think those  
16 who have looked at it and actually studied the  
17 issue, have been coming to a consensus also about  
18 heart disease being caused by passive smoking.

19 MR. ROSENBLATT: Thank you very much,  
20 Doctor.

21 THE COURT: Cross?

22 MR. FURR: Yes.

23 CROSS EXAMINATION

24 BY MR. FURR:

25 Q. Hi, Dr. Hammond.

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1 A. Hello.

2 Q. I won't introduce myself because you and I  
3 have met before; is that right?

4 A. We have.

5 Q. You spoke with Mr. Rosenblatt about a  
6 principle that I believe you described as  
7 environmental variability. Do you recall that?

8 A. Yes.

9 Q. And is it correct that ETS exposures in the  
10 airliner cabin would be highly variable?

11 A. Yes.

12 Q. And would that variability extend to  
13 differences from one flight to another?

14 A. That's certainly a part of the variability  
15 that would be there, yes.

16 Q. And in fact, exposures might even be highly  
17 variable between people on the same flight; is that  
18 correct?

19 A. Yes, it is.

20 Q. Did I hear you say today that exposures  
21 varied by 100 fold?

22 A. Yes.

23 Q. And you were referring to flight attendant  
24 exposures to environmental tobacco smoke in the  
25 airliner cabin at that point?

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1 A. Okay. Yes.

2 Q. You personally have been involved in two  
3 studies in which environmental tobacco smoke was  
4 measured in the airliner cabin; is that correct?

5 A. Yes, it is.

6 Q. And one of those you and Mr. Rosenblatt  
7 talked about known as the Mattson study?

8 A. Yes.

9 Q. Write that up so we can keep track of what  
10 we are talking about.

11 A. Or you can call that the NCI study.

12 Q. Or the NCI study.

13 A. It's the one that measured the exposure on  
14 flight attendants.

15 Q. Put it up there both ways.

16 The Mattson study was published in the  
17 Journal of the American Medical Association in 1989;  
18 is that correct?

19 A. Correct.

20 Q. And I believe you told us that the title of  
21 that publication is Passive Smoking on Commercial  
22 Airlines?

23 A. That is the title.

24 MR. FURR: Can we mark this for  
25 identification, please? Defendants.

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1 THE CLERK: Defendants' Exhibit E  
2 marked for I.D.

3 (Defendants' Exhibit E was marked for  
4 Identification.)

5 THE COURT: Do you have a number on it?

6 THE CLERK: It's only for I.D. It  
7 doesn't have any number on it yet, no pre-number.

8 Q. (By Mr. Furr) Dr. Hammond, can you take a  
9 look at the exhibit which I believe was marked as  
10 Defendants' Exhibit E for I.D. and tell us whether  
11 that was a reprint of the Mattson study which you  
12 just described?

13 A. Yes.

14 Q. And you said that that study was conducted  
15 at the request of the Surgeon General?

16 A. Yes, it is.

17 Q. Did NCI fund that study?

18 A. I think it was -- I think NCI and the  
19 Environmental Protection Agency. I really don't  
20 know the funding mechanisms.

21 Q. This was a study conducted on Canadian  
22 airlines; is that correct?

23 A. Yes.

24 Q. And it was conducted on Canadian airlines  
25 instead of an airline based in the United States

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1 because none of the American Airlines would  
2 cooperate in the study; is that correct?

3 A. That's what I was told.

4 Q. And the purpose of the study was to measure  
5 environmental tobacco smoke on typical commercial  
6 flights?

7 A. Yes.

8 Q. You described the study briefly with  
9 Mr. Rosenblatt, and I believe you told us that the  
10 study included measuring the exposures of four  
11 flight attendants on four flights; is that correct?

12 A. Yes.

13 Q. So a total of 16 flight attendant exposures  
14 were measured?

15 A. Correct.

16 Q. The study also involved measuring the  
17 exposure of five passengers that were participating  
18 in the study on those same four flights?

19 A. Correct.

20 Q. And so a total of 20 passenger exposures  
21 would have been studied?

22 A. Right.

23 Q. The flight attendants that were studied were  
24 assigned jobs that included -- some of their  
25 assignments included working in the smoking sections

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1 and some of the assignments did not necessarily  
2 include working in the smoking section; is that  
3 correct?

4 A. They were officially assigned to the smoking  
5 section or the non-smoking section. Is that what  
6 you're asking?

7 Q. Were they officially assigned to a smoking  
8 section or non-smoking section or were they  
9 officially assigned tasks that would include their  
10 working in the smoking section or the non-smoking  
11 section?

12 A. I'm not sure I understand the difference.

13 Q. In other words, a flight attendant might be  
14 assigned to work the first 15 rows and that may or  
15 may not include part of the smoking section; is that  
16 correct?

17 A. You know, what I know is that the flight  
18 attendants told us they were assigned the smoking  
19 section or they were assigned to the non-smoking  
20 section.

21 That's what we were told, and so that's all  
22 I can really answer. It may be what you said but  
23 that's what I know.

24 Q. You're not an expert on the work patterns of  
25 flight attendants; is that right?

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1 A. I don't know their work assignments.

2 Q. Regardless of the way they were given  
3 assignments for those flights, the flight attendants  
4 that were working in the smoking section also spent  
5 time outside of the smoking section and the reverse  
6 was true also; is that correct?

7 A. Yes. In fact, what was interesting was that  
8 when I looked at the exposures of those assigned to  
9 the smoking section, those exposed to the  
10 non-smoking had similar exposures.

11 Q. The flight attendants that were working in  
12 the section of the airplane working in the smoking  
13 section were free to leave that section and  
14 apparently did so; is that correct?

15 A. I assume that part of their work -- I  
16 wouldn't know if they were free to leave the section  
17 per se. Their work probably took them in and out of  
18 the section.

19 Q. How many types of aircraft were involved in  
20 that study?

21 A. Two.

22 Q. Were those 737s and 767s; was that correct?

23 A. I think that's correct. You probably looked  
24 at this more recently but there were two types.

25 Q. Now, you were one of the -- obviously you

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1 were one of the scientists involved in that study,  
2 correct?

3 A. Yes, I was.

4 Q. And could you describe your involvement in  
5 the study, please?

6 A. Yes. My involvement related to measuring --  
7 determining how we were going to go about assessing  
8 the exposures of these people.

9 There were nine subjects, four flight  
10 attendants and five passengers; and what -- I was  
11 really free to design that as I thought was most  
12 appropriate; and what I designed -- included  
13 measuring their exposures during the flight with  
14 personal samplings where they wore a pump that drew  
15 air through a sampler that was placed in what we  
16 call breathing zone near where they breathe.

17 Drew air through there so we could sample  
18 the same air that the flight attendants were  
19 breathing and sample that through the flight.

20 And we also -- and I prepared the samplers  
21 and later had them analyzed in my laboratory.

22 I trained the field reps who collected those  
23 samples. I also designed sampling the exposures for  
24 the flight attendants and the passengers for the  
25 three days in between each flight when they were

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1 supposed to be smoke free and I also designed the  
2 diary to keep track of what their smoking exposures  
3 ended up actually being.

4 Q. When you were designing how to measure the  
5 flight attendants' exposures, did you choose to use  
6 NDMA or some other carcinogen to measure in order to  
7 describe the flight attendants' exposures?

8 A. No. One of the things -- for many years I  
9 tried to explain that the carcinogens in tobacco  
10 smoke are present at levels that are, generally  
11 speaking, too low to measure or too expensive to  
12 measure. You can measure, but they are just too  
13 expensive to measure on a routine basis; so what you  
14 can do is choose a chemical that's easier to  
15 measure, and nicotine has been widely used as  
16 something that comes from tobacco smoke and doesn't  
17 have other sources in the environment as a good  
18 marker.

19 Q. And, in fact, you chose to use nicotine to  
20 measure -- to describe the flight attendants'  
21 exposure, didn't you?

22 A. Yes, I did.

23 Q. You said that the chemicals that are  
24 believed to be carcinogenic in tobacco smoke are  
25 present at such low levels that it's very expensive

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1 to measure; is that correct?

2 A. Yes.

3 Q. And, in fact, those constituents in  
4 environmental tobacco smoke are probably present in  
5 levels of a nanogram or picogram per cubic meter; is  
6 that correct?

7 A. That's correct, except in very very smoky  
8 situations, but if you want to do more than measure  
9 -- they can be measured in very smoky situations;  
10 but then you can look at a gradation.

11 You can't measure down to low exposures,  
12 then you know everything's less than detectable.  
13 It's not a useful measure, so you need to have  
14 something you can measure, not only at high levels,  
15 but also at low levels.

16 These things can be measured at high levels  
17 but not low levels.

18 Q. Would you explain to the jury what a  
19 nanogram is? Let me ask you first, did I spell that  
20 right?

21 A. Yes.

22 Q. Okay.

23 A. A nanogram is a very very small amount. If  
24 you take a nickel, it weighs five grams, and if you  
25 divide it into a thousand pieces, you have -- each

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1 of them weigh a milligram. If you divide each of  
2 those into a thousand pieces, they weigh a  
3 microgram, and if you divide those into a thousand  
4 pieces you have a nanogram.

5 Q. So would a nanogram be a decimal point with,  
6 is it, eight or nine zeros in front of the number?

7 A. After the decimal point you would have eight  
8 zeros and then a one, if that was one nanogram.

9 Q. This is not a math quiz, but to help us  
10 understand, how many grams are there in a pound?

11 A. They are around 26 -- 28 -- let me see.

12 Q. 2200 maybe?

13 A. 2200.

14 Q. The next term I wanted to ask you about is a  
15 picogram; and again, you have to check my spelling  
16 for me.

17 A. That's good. Picogram is going even  
18 further, so it would be an even smaller amount.

19 These are all very little concentrations  
20 which, in fact, exposures to carcinogens at those  
21 low levels can create problems.

22 Q. Back to the Mattson study, you and the other  
23 investigators attempted to assess environmental  
24 tobacco smoke levels and exposures on what you  
25 described as typical commercial flights; is that

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1 correct?

2 A. Yes. Typical transcontinental flights.

3 Q. And you made no effort in any way to  
4 contrive the flight. You just took the flight as it  
5 was, you did not go out and seek a certain type of  
6 flight; is that correct?

7 A. I did not choose the flights but that's  
8 correct, yes.

9 Q. On the other hand, you and the investigators  
10 made no effort to determine whether or not the  
11 flights that were being measured on were actually  
12 representative of all flights; is that correct?

13 A. That's not exactly correct, actually. There  
14 were some efforts to insure that they fell in the  
15 realm of typical flights.

16 Q. Okay. But there is no effort to determine  
17 whether or not they were representative, in a  
18 scientific sense, of all flights; is that correct?

19 A. What do you mean by that?

20 Q. Do you know what the term representative  
21 means, Dr. Hammond?

22 A. Well, I know what I mean but I'm not sure  
23 what you mean by it.

24 Q. How do scientists use the term  
25 representative?

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1       A.    In this case, it would be if you were  
2   taking -- since we said transcontinental flights, if  
3   you took all the transcontinental flights, if all  
4   flights had an equal probability of being selected  
5   and if the -- there was nothing that was probably  
6   more than a few standard deviations from the average  
7   of what was known, then it would be counted as that.

8       Q.    Dr. Hammond, do you recall when your  
9   deposition was taken in this case on May 27?

10      A.    Yes.

11      Q.    Page 185. Do you recall the following  
12   questions and answers with respect to the Mattson  
13   study?

14                   MS. ROSENBLATT: What line?

15                   MR. FURR: Beginning on line 7.

16                   MS. ROSENBLATT: Do you have a copy for  
17   the witness?

18                   MR. FURR: I do. I don't think we will  
19   need one. I'll be happy to provide you one if you'd  
20   like one, Doctor.

21                   THE WITNESS: If you have one, yeah.

22      Q.    (By Mr. Furr) Page 185, Dr. Hammond.

23                   Do you want to take a moment to orient  
24   yourself to the preceding page? I first asked you  
25   to verify that the discussion on page 185 was with

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1 respect to the Mattson study.

2 A. Yes. Okay.

3 Q. Do you recall the following questions and  
4 answers beginning with line 7:

5 "QUESTION: You're not telling us that any  
6 steps were taken to assess the representativeness of  
7 the flights sampled for transcontinental flights,  
8 are you?

9 "ANSWER: Right, the attempt was to get four  
10 regular flights. They fulfilled certain criteria  
11 that related to the study design, but there was no  
12 attempt to juggle them in terms of smoking more or  
13 less than they should be smoking flights.

14 "QUESTION: And there is no attempt to  
15 ascertain whether, on the parameters that we have  
16 been discussing today, that might affect flight  
17 attendant ETS exposures to determine whether or not  
18 those flights were representative of all flights?

19 "ANSWER: In the study of the design, there  
20 is no way to do that and determine how we could lay  
21 it out retrospectively."

22 Do you recall that, Dr. Hammond?

23 A. Yes.

24 Q. With respect to the passengers for whom  
25 nicotine exposures were measured, they were seated

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1 in both the smoking section and in the non-smoking  
2 section; is that correct?

3 A. That's correct.

4 Q. And in this study, the non-smoking section  
5 was defined as the first row immediately adjacent to  
6 the smoking section; is that correct?

7 A. Not quite. The non-smoking section was the  
8 whole non-smoking section but the passengers  
9 assigned to the non-smoking section were assigned  
10 only to the adjacent row.

11 Q. The passengers whose exposures were measured  
12 in the study sat in the row immediately adjacent to  
13 the smoking section?

14 A. That's correct.

15 Q. No passengers were placed in the middle of  
16 the non-smoking section; is that correct?

17 A. Of the non-smoking, correct, yes.

18 Q. And that was -- a purposeful determination  
19 was made not to place passengers in the middle of  
20 the non-smoking section because you and the other  
21 investigator believed that the exposures to ETS  
22 there would be extremely low; is that correct?

23 A. We -- the anticipation was the exposures  
24 would certainly be higher on the row that bordered  
25 the non-smoking section.

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1 Q. And you expected them to be very low in the  
2 middle of the non-smoking section?

3 A. I actually didn't do the assignment where  
4 they sat.

5 Q. That was the expectation of the team that  
6 was conducting the study, wasn't it?

7 A. I don't really remember -- I don't remember  
8 that being stated as expectation by the team, but  
9 that's certainly possible.

10 Q. Do you still have a copy of the study up  
11 there?

12 A. I do.

13 Q. Could you turn to page 870, first column?

14 A. Mm-hmm.

15 Q. The last sentence in the next to the last  
16 paragraph, tell me if I read this correctly.

17 "No passenger subjects in the study were  
18 placed in the center of the non-smoking section far  
19 from the border with smoking because of the  
20 expectation that exposures there would be very low."

21 A. Good.

22 Q. Is that correct?

23 A. Yes. That's good. Right.

24 Q. I was able to read that correctly?

25 A. You did, excellent. No, that's -- I mean,

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1 that's certainly what I would have expected, but I  
2 didn't really -- I didn't have the motivation of the  
3 people that made those assignments in my head.

4 Q. But that's the way it was described in this  
5 study?

6 A. Yes.

7 Q. I believe you told us that personal monitors  
8 were used to assess the exposures?

9 A. Yes.

10 Q. And you and the other investigators were, in  
11 fact, successful in measuring the exposures to  
12 nicotine of the flight attendants and passengers on  
13 these flights; is that correct?

14 A. Yes, it is.

15 Q. Dr. Hammond, would you take a look at table  
16 2 on page 870 of the study?

17 A. Yes.

18 Q. That's a table entitled Frequency  
19 Distributions of Air, Nicotine Reads and Test of  
20 Significance, isn't it?

21 A. Yes, it is.

22 Q. I've had it blown up so that everybody can  
23 see it?

24 A. Mm-hmm.

25 Q. I'll ask you to take a look at what we have

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1 blown up and tell us whether it accurately  
2 reproduces what is contained in that table.

3 A. These things don't blow up well, do they?

4 Q. No, they don't. I'm hoping you-all can see  
5 it better than I can.

6 A. It looks right. I've got it here so.

7 THE COURT: Is there a glare on there  
8 that prevents you from seeing?

9 Q. (By Mr. Furr) Let's try to break down some  
10 of this.

11 This table contains a summary of one way of  
12 looking at the exposure measurements that are  
13 obtained in this study; is that correct?

14 A. Yes.

15 Q. And one of the things this study does is  
16 divide the measurements that were made for the  
17 flight attendants and the passengers into three  
18 categories; is that right?

19 A. Okay. Yes.

20 Q. Those being high, moderate, low; is that  
21 correct?

22 A. Yes.

23 Q. Now, the term high was used when the  
24 exposures were found to be greater than 12  
25 micrograms per cubic meter; is that correct?

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1 A. Yes.

2 Q. The term moderate was used when the exposure  
3 was found to be one to 12 micrograms per cubic  
4 meter; is that correct?

5 A. Yes.

6 Q. The term low was used when the exposure was  
7 found to be less than one microgram per cubic meter?

8 A. Right, this was a distinction particularly  
9 for this data set to divide it into three pieces,  
10 yes.

11 Q. And the flight attendants' exposures were  
12 set out separately in this table from the  
13 passengers' exposure; is that correct?

14 A. Yes. There is one analysis but that's done  
15 separately, yes.

16 Q. When we look at the exposures that were  
17 high, that being greater than 12 micrograms per  
18 cubic meter, we have eight passengers in that  
19 category; is that correct?

20 A. That's correct.

21 Q. And we have no flight attendants?

22 A. That's correct.

23 Q. And when we look at the exposures, they are  
24 described as low, that being less than one microgram  
25 per cubic meter, that's where five of the 16 flight

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1 attendants fell; is that correct?

2 A. That's correct. These are terms  
3 specifically that are used for this data set.

4 Q. Right?

5 A. There is not an absolute meaning.

6 Q. These don't have some special meaning in the  
7 scientific community?

8 A. No.

9 Q. These were terms that you -- were created  
10 because it was a convenient way of breaking this  
11 data up to look at?

12 A. That's right.

13 Q. I think you already told us there were four  
14 flights looked at and two of those flights had 100  
15 percent fresh air; is that correct?

16 A. Yes.

17 Q. Those being flights number 1 and number 2?

18 A. Correct.

19 Q. And two of the flights being -- those being  
20 flights number 3 and 4 had 50 percent recirculated  
21 air; is that correct?

22 A. That's correct.

23 Q. Now, the flights that had 100 percent fresh  
24 air had significantly more nicotine than the flights  
25 that had 50 percent recirculated air; is that

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1 correct?

2 A. That's correct, in the data set as a whole.  
3 It's not correct among the flight attendants of --  
4 the flight attendants actually had higher average  
5 exposure on the flights with fresh air than the  
6 recirculated air.

7 Q. With respect to all the data?

8 A. All the --

9 Q. Passengers and flight attendants?

10 A. Right.

11 Q. The flights with 100 percent recirculated  
12 air had significantly less nicotine than the flights  
13 with 50 percent?

14 A. That's correct.

15 Q. I meant to say 100 percent fresh air than  
16 the flights with 50 percent fresh air?

17 A. Let me just try to say it, see if I say it  
18 right.

19 The flights that had 100 percent fresh air,  
20 in general, the exposures, particularly from the  
21 passengers when they had 100 percent fresh air were  
22 lower than when we recirculated the air.

23 If you look at the flight attendants  
24 themselves, their exposures, in fact, were higher  
25 with the fresh air. I think that's just chance.

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1 They are not statistically different.

2 Their exposure did not change really -- it's  
3 really the passengers whose exposure changed  
4 dramatically.

5 Q. Okay. In 1985, approximately 70 percent of  
6 all the U.S. domestic flights had 100 percent fresh  
7 air; is that correct?

8 A. I don't know.

9 Q. Okay.

10 A. 1985, you're saying 75 percent --

11 Q. Why don't you look at the Mattson  
12 publication?

13 A. Mm-hmm.

14 Q. Page 871, right-hand column. And about the  
15 middle of the first paragraph, did you and the other  
16 authors of this paper write, "Passengers in  
17 attendance may be exposed to higher levels of  
18 environmental tobacco smoke in the next decade as  
19 the percentage of seat hours on airplanes with  
20 recirculation systems increase from 30 percent in  
21 1985 to an estimated 40 percent in 1990."

22 A. Yes. We base that on the National Academy  
23 of Science's report on cabin air quality, those  
24 estimates.

25 Q. About that report, do you consider the

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1 National Academy of Science report to be an  
2 authoritative source of information on cabin air  
3 quality?

4 A. I think it's one -- it's a useful -- I  
5 think, you know, they had limited data but the data  
6 they have, it's very useful.

7 Q. It's a source that you turn to for  
8 information?

9 A. Yes, it's one of the sources.

10 Q. Going back to this paragraph here, you  
11 actually wrote that there were recirculation systems  
12 on board 30 percent of the aircraft in 1985, another  
13 way of saying that is that 70 percent of the  
14 aircraft had 100 percent fresh air?

15 A. That would be correct.

16 Q. And you also know, Dr. Hammond, that prior  
17 to 1980, that nearly 100 percent of all flights had  
18 100 percent of fresh air, don't you?

19 A. I don't know that. It's probably true but I  
20 don't know that.

21 Q. That --

22 A. That's probably true.

23 Q. That's probably true. You'd have no reason  
24 to question that, would you?

25 A. (Witness shakes head.)

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1 Q. You told us earlier that you believe that  
2 flights -- that exposures in the past may have been  
3 higher than exposures in the late '80s?

4 A. Substantially higher, yes.

5 Q. But here you and your co-authors predict  
6 that as the fleet changes over from a fleet that  
7 uses 100 percent fresh air to one that uses a higher  
8 percentage of recirculated air, that, in fact, ETS  
9 exposures will probably go up over time?

10 A. Well, you have to look at comparison points.  
11 If one comparison point we are starting with is this  
12 study itself, the Mattson study, that's the  
13 comparison point; so if this is 1989, we are saying,  
14 okay, if we start at this level of exposure, if you  
15 recirculate the air in more of those planes, the  
16 exposure will go up.

17 We can also start with this level and say if  
18 in the past what was it, and we know in the past it  
19 was much higher, so there are different reasons that  
20 they were higher.

21 You can get to higher levels for different  
22 reasons, so the levels may have been coming down and  
23 we were just warning they may go back up again with  
24 the recirculation. That's a warning.

25 Q. Different factors may drive the levels of

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1 environmental tobacco smoke up or down; is that  
2 correct?

3 A. Correct.

4 Q. And the introduction of aircraft that  
5 recirculated air as opposed to using 100 percent  
6 fresh air is a factor that would drive exposures  
7 which way?

8 A. It has a potential to drive them up, but as  
9 I was saying, the other factors which we clearly can  
10 look at the literature, it's clear levels were  
11 coming down to that point to be measured.

12 Q. Before we move to the next topic and we will  
13 come back to this, but just so there is no confusion  
14 about the testimony that you've given about flight  
15 attendant exposures in the past, you're not ahead of  
16 us in the sense of having a time machine that allows  
17 you to go back in the past and measure exposures?

18 A. I think in my deposition I actually said I  
19 didn't have one.

20 Q. I wanted to make sure you still didn't have  
21 one.

22 A. No, I haven't invented it yet.

23 Q. You've made those estimations based on  
24 piecing together certain types of information from  
25 the past; is that correct?

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1       A.    Right.  I use the same kind of approaches  
2   that I use in any retrospective exposure assessment  
3   that I've done, as I said, in many other  
4   occupational settings.

5       Q.    Dr. Hammond, the reprint that you have there  
6   on the Mattson study does not report all of the data  
7   that were collected as part of that study?

8       A.    No.

9       Q.    There was some data that was collected as a  
10   part of that study and not presented to -- I believe  
11   you described it as the scientific public that reads  
12   these types of journals?

13      A.    Yes.

14      Q.    You recently provided to the Defendants in  
15   this lawsuit copies of materials that contain some  
16   of the data that were collected in the Mattson  
17   study; is that correct?

18      A.    Yeah.  The request, I think, was for the raw  
19   materials in the Mattson paper and I have so little  
20   free time in my long days, I just gathered up a  
21   bunch of papers and sent them off for photocopy and  
22   included in them material beyond what is in the  
23   paper, correct.

24      Q.    And so when you gathered up all the papers,  
25   you found papers related to the Mattson study that

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1 included data that had been acquired during the  
2 study that had not been published about in that  
3 paper; is that correct?

4 A. Right.

5 Q. The measurements that are published in that  
6 paper involve the personal monitors; is that right?

7 A. Right, because that was the focus of this  
8 study was that really -- the original plan of the  
9 study was just to look at the Cotinine,  
10 C-O-T-I-N-I-N-E, which is a metabolite of nicotine;  
11 so in other words, we were looking for a chemical  
12 from passive smoking to see if it really entered  
13 people's bodies, the flight attendants and  
14 passengers' bodies, and able to be picked up in the  
15 urine.

16 That was the main goal of the study, so a  
17 study like that and that's the main goal of the  
18 paper.

19 And so for a study like that, what you want  
20 to look at is the personal exposures to those  
21 people.

22 That was actually my big role there is to  
23 say, okay, what was this person actually exposed to  
24 so we can interpret their urinary cotinine  
25 measurements.

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1 Q. Dr. Hammond, what does the term limited  
2 detection mean in analytical chemistry?

3 A. Basically it's a level below which you  
4 really can't be sure that something is there.

5 So in other words, if you can measure -- you  
6 can measure a certain concentration, you can go to a  
7 lower concentration and measure it. You can go to a  
8 lower level and then at some point you can't measure  
9 it.

10 So in general -- and what we are saying when  
11 you get to the level, you can't measure it.

12 Q. So at some point you might get measurements  
13 with your machine that -- so that some material was  
14 there but it's so low you can't be sure whether  
15 you're measuring it or not; is that correct?

16 A. That's one way in which your limit of  
17 protection may be set. There are many things that  
18 could add to it. That's one particular component,  
19 but it happens to be the level you can be sure what  
20 you've got is real.

21 Q. In addition to the personal monitors you  
22 have told us about, the Mattson study also made some  
23 measurements using area monitors; is that correct?

24 A. That's correct.

25 Q. Could you explain to the jury what area

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1 monitors are?

2 A. Okay. I'll do it by contrast of personal  
3 monitors. Personal monitors were what the people  
4 wear themselves. They are -- the air is drawn from  
5 the breathing zone of a person, so it samples the  
6 same air a person breathes.

7 In contrast, an area sample is placed in  
8 some place you're interested in knowing what the  
9 concentration is in that area, but it doesn't move  
10 around.

11 Q. And as with the personal monitors, the  
12 substance that was measured in the Mattson study  
13 with the area monitors was nicotine; is that  
14 correct?

15 A. Yes.

16 Q. And these materials that you've provided to  
17 us that weren't published on, don't they show that  
18 once you get about seven rows from the smoking  
19 section, that using area monitors, nicotine is at  
20 the limit of detection?

21 A. Okay. Let me try to be clear here in some  
22 limits and I'm trying to be honest here.

23 Q. I hope so.

24 A. Absolutely. My whole understanding and my  
25 role in this trial was to talk about the personal

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1 exposures of flight attendants, and I have focused  
2 on that in doing this.

3 I did not go back in preparation for my --  
4 for the trial and look at those samples.

5 Now, we did, this morning, look at two of  
6 them in the deposition, and I have a general memory;  
7 but I want to say that -- I don't know whether I  
8 should speak from my general memory or whether I  
9 should not speak to that because I'm not absolutely  
10 sure or whether I should only speak to what I know  
11 for sure about those other samples.

12 Should I say that again? My problem is  
13 simply I don't have the numbers in front of me.

14 Q. If Your Honor --

15 THE COURT: To the best of your  
16 recollection, let's put it that way.

17 THE WITNESS: To the best of my  
18 recollection, I'm really doing this as honestly as I  
19 can, the levels -- the area samples which were  
20 placed in the middle of the non-smoking section have  
21 very very low levels of nicotine.

22 Q. Okay.

23 A. And I think -- I know from the data that was  
24 shown to me this morning by one of your colleagues,  
25 that at least one of those was less than detectible.

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1 We looked at two of them. One was less than  
2 detectable and the other one was tiny, teeny, weeny,  
3 weeny.

4 MR. FURR: Your Honor, would this be a  
5 convenient place to take a five-minute break?

6 THE COURT: How much time are you going  
7 -- if you are going to be a lot of time.

8 MR. FURR: Yes.

9 THE COURT: Let's take a short break,  
10 folks. Do not discuss the testimony or reach any  
11 conclusions, and we'll be with you shortly.

12 (The jury retired from the courtroom.)

13 THE COURT: Okay. Same rules apply  
14 about not speaking to anybody during the recess.

15 What I need to know from you, counsel, is  
16 approximately how much time do you think you are  
17 going to need?

18 MR. FURR: I thought that question was  
19 coming. I was trying to look through my notes. I  
20 believe I'm about a fourth of the way through.

21 THE COURT: Really?

22 MR. FURR: Depending on the answers I  
23 get.

24 THE COURT: I would like to complete  
25 this witness today because of tomorrow's upset

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1 schedule.

2 MR. ROSENBLATT: She has got a flight  
3 back to California this evening.

4 THE COURT: What time?

5 THE WITNESS: Seven-thirty.

6 THE COURT: Well, let's do the best we  
7 can.

8 MR. FURR: I certainly will.

9 THE COURT: I want to finish her today  
10 if we can, so we'll have to cut the recess somewhat  
11 short and get to it, if we can eliminate a lot of  
12 extraneous materials depending on some of the  
13 answers, we'll do the best we can. I'd like to  
14 accommodate the witness's schedule.

15 MR. FURR: Your Honor, she has a  
16 seven-thirty flight, is that what I understand? We  
17 need to be done by six, is that --

18 THE COURT: I would hope.

19 MR. FURR: I'll try.

20 THE COURT: I know you are going to do  
21 your best, but just keep in mind the time.

22 MR. ROSENBLATT: Imagine if I was  
23 objecting.

24 (A brief recess was taken.)

25 (The jury entered the courtroom and the

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1 following proceedings were had:)

2 THE COURT: Have a seat, folks. We  
3 might be working a little bit late tonight, folks, a  
4 little bit. Not too much. We need to get this  
5 witness's testimony out of the way today if we  
6 possibly can.

7 BY MR. FURR:

8 Q. Dr. Hammond, I want to touch briefly on the  
9 topic that was raised during your direct  
10 examination. Do you recall Mr. Rosenblatt asking  
11 you questions about the breathing rates of the  
12 flight attendants?

13 A. Yes.

14 Q. The breathing rates or respiratory rates of  
15 flight attendants would be a factor that would  
16 affect their ETS exposure, is that correct?

17 A. It would affect how much passive smoking  
18 they took into their bodies, yes.

19 Q. And by that what we mean is that one's  
20 breathing rate affects how much air per minute that  
21 someone would inhale and exhale and, thus, if  
22 there's something else in there, how much of that  
23 will be inhaled and exhaled also, is that correct?

24 A. Correct.

25 Q. And breathing rates are proportional, among

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1 other things, to one's level of activity?

2 A. Yes.

3 Q. For instance, when you are sitting down,  
4 your breathing rates go down, is that correct?

5 A. Yes.

6 Q. And so for those portions of the flight like  
7 take-off, landing, during rest breaks, et cetera,  
8 when flight attendants are sitting down, their  
9 breathing rates would go down, is that correct?

10 A. Yes, although they would go down, but  
11 there's also evidence that a higher -- in an  
12 airplane cabin, because the barometric pressure is  
13 less, that one has to breathe more than you would  
14 ordinarily breathe.

15 Q. That would go for passengers and flight  
16 attendants?

17 A. Yes.

18 Q. Dr. Hammond, there are a number of ways to  
19 describe respiratory rates, aren't there?

20 A. Yes.

21 Q. What I mean by that, you can describe them  
22 numerically or there are labels that are used in the  
23 occupational health industry to describe breathing  
24 rates also, aren't there?

25 A. Yes. Descriptors you mean?

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1 Q. Yes. Now, you would describe breathing  
2 rates of flight attendants as the breathing rates of  
3 someone of light work, is that correct?

4 A. Light to moderate work. I mean, when they  
5 are serving, that's moderate work.

6 Q. Now, let's try to describe them the other  
7 way with a numerical value such as by describing  
8 them in terms of the numbers of liters per hour, I  
9 guess it is, or per minute that someone is inhaling  
10 and exhaling.

11 Do you have a number for that for flight  
12 attendants?

13 A. I reviewed some -- I thought about some of  
14 the physiology that I have taken. I have looked at  
15 some of the physiology stuff. I have looked at that  
16 and I think there's a range, of course. It's going  
17 to vary from person to person. But I think the  
18 range that falls is in the order of the mid-twenties  
19 to mid-forties liters per minute. So, I basically  
20 have said about 30 liters per minute but, obviously,  
21 there's a range.

22 Q. I'd like to show you a document entered into  
23 evidence this morning while I was gone, NRC 1986  
24 Airliner Cabin Report was entered, is that correct?

25 No, that's not it.

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1 MS. LUTHER: It's Exhibit Number 484.  
2 THE CLERK: It's over there.  
3 THE WITNESS: Thank you.  
4 BY MR. FURR:  
5 Q. Dr. Hammond, that's the NRC 1986 report that  
6 you described to me earlier as one of the  
7 authoritative sources that you looked to for  
8 information on various factors, is that correct?  
9 A. Yes.  
10 Q. Would you take a look at that report on Page  
11 145, please, and I'm going to refer you to the last  
12 paragraph.  
13 MR. ROSENBLATT: Objection, Your Honor.  
14 This is not within the scope of my questioning. I  
15 didn't ask a question about that.  
16 MR. FURR: Of course he did.  
17 THE COURT: What are we looking at?  
18 MR. FURR: Talked about the breathing  
19 rates of flight attendants.  
20 THE COURT: What?  
21 MR. FURR: Breathing rates of flight  
22 attendants.  
23 THE COURT: In general, he did talk  
24 about that.  
25 MR. ROSENBLATT: Not this book.  
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1 THE COURT: But not from the book,  
2 that's true. But if that goes to the subject  
3 matters -- overruled.

4 MR. FURR: It's a book she described as  
5 authoritative.

6 BY MR. FURR:

7 Q. Dr. Hammond, looking at that last paragraph,  
8 you see that the National Research Council was  
9 attempting to make a calculation of flight  
10 attendants exposure, don't you?

11 A. Yes.

12 Q. And you see that when the National Research  
13 Council wanted to estimate the exposure of flight  
14 attendants, the value that they use was 15 liters  
15 per minute, don't you?

16 A. I see that, yes. I don't think that that's  
17 -- I would disagree with that number.

18 Q. New topic. You also participated in another  
19 study of environmental tobacco smoke aboard  
20 aircraft, is that correct?

21 A. Yes.

22 Q. And that's a study that was sponsored by the  
23 United States Department of Transportation?

24 A. Yes.

25 Q. And the way that study was done, wasn't it,

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1 is that the United States Department of  
2 Transportation contracted out with a private  
3 contractor to have that study done, is that correct?

4 A. Yes.

5 Q. And the private contractor that -- the  
6 general contractor was a group known as Geomet?

7 A. That is correct.

8 Q. And in Geomet, the lead investigator on that  
9 study was a Dr. Nagda, is that correct?

10 A. That is correct.

11 Q. I'll write this up here so we can keep track  
12 of it like we did the Mattson study.

13 Did I get those right?

14 A. Yes.

15 MR. ROSENBLATT: You know, Judge,  
16 objection. This was never mentioned during my  
17 examination of this particular study. Counsel --

18 THE COURT: Let's talk side bar.

19 (Counsel and the court reporter approached  
20 the bench, and the following discussion was held  
21 outside the hearing of the jury:)

22 THE COURT: Where are we going with  
23 this?

24 MR. FURR: Well, Your Honor, this is  
25 the easy one, I think. She was involved in this

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1 study. She was the chemist that designed the sample  
2 protocol and made the measurements. It's a study of  
3 tobacco smoke aboard aircraft that she was involved  
4 in, and what I plan on doing is impeaching certain  
5 inferences from her testimony by demonstrating the  
6 data in this study which she was involved are  
7 contrary to what she has testified to.

8 THE COURT: The study that she  
9 testified on direct that she was involved in?

10 MR. FURR: She did not mention it today  
11 very purposefully, I'm fairly confident, but during  
12 her deposition she did indicate it was one of the  
13 studies she reviewed as she formulated her  
14 opinion -- I can give you page and line number.

15 THE COURT: Don't react to counsel.

16 MS. ROSENBLATT: My objection, Your  
17 Honor, I didn't even get a chance to present it.

18 THE COURT: We are not there yet.

19 MR. FURR: She testified on deposition  
20 that it was one of the studies that she was involved  
21 with, that it's the largest, the most representative  
22 study that exists and that she reviewed it in  
23 preparing to formulate her opinions in this case.

24 MR. HARDY: And Your Honor, I'd like to  
25 add that I believe the question is not was the study

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1 discussed on direct examination. The question is  
2 was the area of inquiry gone into, because you can  
3 impeach her with anything that impeaches her direct  
4 examination testimony. Whether the particular  
5 document was used on direct or not is irrelevant.

6 THE COURT: That may be, but there's  
7 also another rule that says you can't use this kind  
8 of stuff to get in substantive evidence which is  
9 another problem which everybody seems to be doing  
10 anyway. And whether they raise objections or not,  
11 they do it. But in other words, you couldn't get  
12 this stuff in through any other source, get it in  
13 through this alleged cross examination, so there's a  
14 problem with that. But let's see what you are  
15 talking about.

16 MS. ROSENBLATT: Okay. She testified  
17 throughout her deposition she had done a very  
18 limited amount of work. This is the study. She  
19 hadn't read the study, she never read the study, she  
20 didn't rely on the study, and basically she did some  
21 measurements. Nevertheless, it was a discovery  
22 deposition and they just showed her this and showed  
23 her that and they asked her a lot of questions.

24 THE COURT: What did she do with this?

25 MS. ROSENBLATT: She made some

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1 measurements. She was hired by the people that did  
2 the study to do some measurements. But in terms of  
3 what she is testifying to, she had stated this is  
4 the study -- "Have you reviewed it?"

5 "I did not read the actual technical  
6 report."

7 THE COURT: She didn't read the study.  
8 She only did her little bit.

9 MS. ROSENBLATT: She did her little  
10 bit. She did not rely on it in rendering opinions.

11 THE COURT: Okay. Now, she made some  
12 measurements.

13 MR. FURR: I think I need to clarify  
14 something. This is the technical report that was  
15 produced by Geomet that Dr. Hammond testified she,  
16 in fact, had not read the whole thing. There was a  
17 subsequent publication on this study involving four  
18 authors in which she is one of those authors and is  
19 extremely familiar with, it's her study on ETS in  
20 airline cabins.

21 THE COURT: What are you trying to show  
22 by this, her calculations were wrong or that the  
23 study was wrong?

24 MR. FURR: What I plan to do with this  
25 study is demonstrate that, in fact, flight

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1 attendants' exposures would have been low and, in  
2 fact, would have been non-existent once they got  
3 outside the smoking section.

4 MR. HARDY: Your Honor, this is just  
5 straight 706.

6 THE COURT: You can use it, but there's  
7 limits. Yes, I understand the rule. I understand  
8 what you are talking about. I also have to look at  
9 the other side of it as the reasons you are trying  
10 to get it in, okay? If it goes directly to  
11 impeaching her testimony based upon her work, that  
12 might be a different story.

13 MR. FURR: She has testified that  
14 flight attendant ETS exposures are high, and I plan  
15 on demonstrating what is the study that at least in  
16 some parts of the airplane flight attendant ETS  
17 exposures are low.

18 THE COURT: Just for that limited  
19 purpose, I'll let it in.

20 Overrule the objection.

21 (The following proceedings were held within  
22 the hearing of the jury:)

23 THE COURT: See if you can narrow it  
24 down.

25 BY MR. FURR:

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1 Q. Dr. Hammond, you were a consultant to the  
2 group that conducted this study, is that correct?

3 A. Yes.

4 MR. FURR: Can we mark these for  
5 identification, please?

6 THE CLERK: Sure. Defendants' Exhibit  
7 F marked for identification.

8 BY MR. FURR:

9 Q. Dr. Hammond, following completion of that  
10 study, there is a large technical report that was  
11 created and delivered to the Department of  
12 Transportation, is that correct?

13 A. Yes.

14 Q. And there was also a publication on that  
15 study that appeared in a journal known as  
16 Atmospheric Environment, is that correct?

17 A. Yes.

18 Q. And you were one of the four authors that  
19 are -- four investigators that are listed as authors  
20 of that study?

21 A. Yes.

22 Q. And is the Exhibit E for identification that  
23 you have just been handed a copy of that study?

24 A. I can't tell the exhibit number but  
25 whatever.

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1 THE CLERK: "F".

2 THE WITNESS: It looks like a "P" to  
3 me.

4 THE COURT: Defendants' F for I.D.

5 THE WITNESS: "F".

6 BY MR. FURR:

7 Q. Dr. Hammond, the purpose of that study was  
8 to develop information to be used for determining  
9 health risk from exposure to ETS for nonsmoking  
10 airliner occupants, is that correct?

11 A. Yes.

12 Q. In the nonsmoker airline occupants would  
13 have included flight attendants, is that correct?

14 A. Yes.

15 This was the risks based -- this study was  
16 conducted a year later, as you said, so this was  
17 1989. So, it was looking at the risks given  
18 exposures as of 1989 at that level. That was the  
19 point. Not looking back, not looking at the  
20 previous hazards which clearly were very different  
21 but rather at this level, have they been reduced  
22 sufficiently or not.

23 Q. Okay. Let's talk about how this study was  
24 done, and we'll talk about what it shows as quickly  
25 as we can.

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1           This was a study of 92 flights, is that  
2 correct?

3       A.   Yes.

4       Q.   And the 92 flights included 69 smoking  
5 flights, is that correct?

6       A.   Yes.

7       Q.   8 of the 69 smoking flights were on  
8 international airlines?

9       A.   Yes.

10      Q.   The study also involved sampling on 23  
11 nonsmoking flights?

12      A.   Yes.

13      Q.   The flights were taken from 70 airports  
14 across the country, is that correct?

15      A.   I think that's right. I don't remember  
16 exactly. I don't see it right away, but yes, that  
17 sounds right.

18      Q.   And those 70 airports were the 70 airports  
19 in this country that account at least at that time  
20 for 90 percent of the departures, is that correct?

21      A.   Yes. 90 percent of the departures in 1987.

22      Q.   In '87. So, this study was published in  
23 '89. When was the data gathered?

24           Excuse me. This was published in 1992,  
25 wasn't it?

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1       A.    But the sampling data was gathered in 1989  
2 because you wouldn't have the flight information for  
3 the current year.  You would have to go back.

4       Q.    In determining which flights to sample, the  
5 investigators developed a protocol for sampling  
6 flights, is that correct?

7       A.    Correct.

8       Q.    And that protocol was developed with a lot  
9 of care, wasn't it?

10      A.    Yes.

11      Q.    And the intention of that protocol was to  
12 sample a set of flights that would be representative  
13 of all flights in the country as of that day, is  
14 that correct?

15      A.    Yes.

16      Q.    And you believe that the sampling protocol  
17 did, in fact, result in sampling a set of flights  
18 that were representative of all flights as of that  
19 time, don't you?

20      A.    I didn't participate or do that but that's  
21 my understanding that they did successfully do that.

22      Q.    One of the reasons this study was done was  
23 because of the inability to demonstrate that the  
24 other work that had been done including the Mattson  
25 study were representative, is that correct?

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1       A.    I don't remember it being phrased as such.  
2    I would say if one can gather representative data,  
3    which is what the goal of this was, it would enable  
4    one to know how representative other data was.

5       So, for instance, when you look at the final  
6    results of the study, you can see the Mattson study  
7    fits right in with it so that the results of that  
8    become much more believable. They are part of the  
9    whole true picture you can interpret that way.

10     Q.    Dr. Hammond, take a look at Page 2204 of the  
11    study?

12     A.    2204.

13     Q.    Now, the right-hand column --

14     A.    Yes.

15     Q.    The right-hand column begins with a  
16    description of the other studies then in existence  
17    in the literature including the Mattson study,  
18    doesn't it?

19     A.    I'm sorry. I was in the table. You mean in  
20    the column itself, yes.

21     Q.    And then the next paragraph reads as  
22    follows, doesn't it: "Although these studies have  
23    been useful in suggesting ranges of concentrations  
24    of ETS tracers encountered in the general airliner  
25    cabin environment, the monitored flights were not

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1 randomly selected and the number of observations was  
2 generally small precluding any generalization of the  
3 results."

4 "Similarly, determining factors, e.d.  
5 smoking rates, ventilation symptoms, seating  
6 patterns of ETS concentrations for the general  
7 airliner cabin environment were not investigated in  
8 depth."

9 Is that correct?

10 A. That's what that paragraph says.

11 Q. And that paragraph is a commentary on the  
12 other existing studies including the Mattson study?

13 A. Basically what this paragraph says is not  
14 that they were not generalized, it's just that one  
15 was not able to, from those studies, know if they  
16 were reasonable studies as a result of the Geomet  
17 study, then one can evaluate those studies and, as I  
18 said, find the Mattson study does, in fact, fit in  
19 the same context.

20 Q. And you agreed with the comments and  
21 characterization contained in that paragraph?

22 A. It's a little strong. We always overstate  
23 things at the end of an introduction. You know, we  
24 are doing great wonderful science here that no one  
25 has ever done, so it's a little strong but it's

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1 reasonable.

2 Q. I want to make sure I understand. Is it  
3 your testimony that scientists tend to overstate  
4 things in the introduction to their papers?

5 A. Well, sometimes the importance of their work  
6 or why it's important. You know, what I'm saying is  
7 what this says, precluding any generalization of the  
8 results, I think that's a little strong, that's all.

9 Q. Would it be fair, then, to say that your  
10 opinion that --

11 A. It was limiting. I would have said  
12 limiting.

13 Q. We should take with a grain of salt  
14 statements we read in the introduction of scientific  
15 articles about the importance of materials presented  
16 therein?

17 A. We can make that judgment ourselves as  
18 readers. It's straightforward.

19 Q. In the Nagda study, sampling was performed  
20 for both vapor phase and particulate phase markers  
21 of environmental tobacco smoke, is that correct?

22 A. Yes.

23 Q. And for vapor phase markers, nicotine,  
24 again, was the marker chosen as the way to  
25 characterize exposures, is that correct?

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1 A. Yes.

2 Q. For a particulate phase, for the particulate  
3 phase, total RSP was chosen as a way to characterize  
4 the particulate phase of ETS, is that correct?

5 A. I don't think you want to say total RSP.  
6 You make a choice.

7 Q. Okay. That's redundant, isn't it?

8 A. It's not redundant. It's contradictory.

9 Q. Okay. RSP?

10 A. Yes, which stands for respirable particles,  
11 which means the particles coming into your lungs,  
12 not all particles, which is what total means.

13 Q. And the RSP was measured using two different  
14 techniques, is that correct?

15 A. Yes, it was.

16 Q. One was a technique known as the gravimetric  
17 method?

18 A. Yes.

19 Q. And the second technique for measuring RSP  
20 is the optical reading method, is that correct?

21 A. It was the optical method.

22 Q. The gravimetric method used for RSP was your  
23 method, wasn't it?

24 A. It was not my method per se. It's a  
25 standard method used in the industrial literature

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1 and in the environmental literature and it's been  
2 around since before I was born. It's not mine.

3 Q. In the study --

4 A. But I did the analysis.

5 Q. I'm sorry?

6 A. But in my laboratory, I did that.

7 Q. That's my next question. In addition to  
8 participating in the design of the study, your  
9 laboratory actually did the analysis to determine  
10 the amount of gravimetric RSP in nicotine that were  
11 measured in the airplane, is that correct?

12 A. Correct.

13 Q. Samples for nicotine in RSP were taken on  
14 both smoking and nonsmoking aircraft, is that  
15 correct?

16 A. Correct.

17 Q. On the smoking aircraft, RSP and nicotine  
18 samples were taken in four locations, is that  
19 correct?

20 A. Yes.

21 Q. They were taken in the smoking section per  
22 say?

23 A. Yes.

24 Q. In a boundary section consisting of the  
25 three rows adjacent to the smoking section and in

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1 the middle of the nonsmoking section and finally at  
2 the remote ends of the nonsmoking section, is that  
3 correct?

4 A. Yes.

5 Q. And in the nonsmoking flights, samples were  
6 taken in two sections of the aircraft, is that  
7 right?

8 A. Yes.

9 Q. One of the reasons for including the  
10 nonsmoking flights in the study was to determine  
11 what levels of RSP there are in flights where there  
12 is no smoking permitted, is that right?

13 A. Right. Also, there were other materials  
14 that would be present like bacteria and fungi that  
15 were being measured that would be present on smoking  
16 or nonsmoking flights. You would want to check that  
17 too.

18 Q. And with respect to the RSP, one of the  
19 reasons for doing that is to provide you a baseline  
20 for comparison purposes to determine what the  
21 tobacco smoke contribution of RSP is on a smoking  
22 flight, is that right?

23 A. It's one way in which that data can be used.

24 Q. In fact, it was used in the study that way,  
25 wasn't it?

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1 A. Probably. I can't remember at this point.

2 Q. The problem here is that RSP is not specific  
3 to tobacco smoke?

4 A. That's right. There are many sources of  
5 RSP. There's some right here in this room.

6 Q. I want to ask you briefly about some of the  
7 results in the paper, Doctor, and ask you to turn to  
8 table three on Page 2207.

9 A. I'm there.

10 Q. We also have had that blown up so we can all  
11 look at it together, and I would ask you to take a  
12 look at this and tell me whether or not it  
13 accurately reflects what is in table three.

14 A. Without checking each number, it basically  
15 looks right.

16 Q. You take my word on that?

17 A. I'll take your word for that.

18 Q. This table is entitled Levels of ETS  
19 Contaminants on Smoking and Nonsmoking Flights, is  
20 that right?

21 A. Yes.

22 Q. There's a lot of information contained in  
23 that table, so let's try to break it down.

24 Doctor, let's make sure we can read the  
25 table. These columns here present the value, the

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1 average values that were measured on all flights  
2 sampled for the smoking flights for the smoking  
3 boundary, middle and remote sections and for the  
4 rear and middle sections of nonsmoking flights, is  
5 that correct?

6 A. Yes.

7 Q. And if we read down in this row, down this  
8 column, we can see what specific parameters these  
9 values relate to, is that correct?

10 A. Yes.

11 Q. For instance, if we look down the column in  
12 the smoking flight labeled smoking and come down  
13 here to average nicotine, we get a value for the  
14 average micrograms per meter of nicotine found in  
15 all of the smoking flights, is that right?

16 A. That is correct. For instance, one can look  
17 at that number and compare that to other studies  
18 such as the Mattson study where they are comparable.

19 Q. Now, if we look at the number next to it  
20 which is the average nicotine level found in the  
21 boundary section of the smoking flights, we see that  
22 the average was 0.26 micrograms per cubic meter, is  
23 that correct?

24 A. That's the number in the table.

25 Q. And the boundary section in this study was

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1 the three rows immediately adjacent to the smoking  
2 section, is that correct?

3 A. Yes.

4 Q. And so in this study you found that when  
5 going from the smoking section to the boundary  
6 section, average nicotine levels decreased by about  
7 98 percent, didn't they?

8 A. Yes, I guess that's right. I'm not sure how  
9 this is relevant to flight attendants' exposures. I  
10 missed that point.

11 Q. We'll get to that. We'll get to that.

12 MR. ROSENBLATT: That's the basis of my  
13 objection. I mean, we are going --

14 MR. FURR: Let me ask one question and  
15 I think it will take care of it.

16 MR. ROSENBLATT: Based on the side bar,  
17 I mean, he has been going way beyond what I  
18 understood, Your Honor.

19 THE COURT: Let's see what his next  
20 question is then.

21 BY MR. FURR:

22 Q. Dr. Hammond, do flight attendants spend some  
23 part of their work time in the boundary section of  
24 the aircraft next to the smoking section?

25 A. Yes.

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1 Q. And so, during the time that they are in the  
2 boundary section, this is the concentration of  
3 nicotine that they would be inhaling, is that  
4 correct?

5 A. Not necessarily, no, I wouldn't say that.  
6 See, I would like to step back and remind you the  
7 difference between personal and area samples and  
8 remember that the flight attendants are moving  
9 around and their personal samples move with them.

10 So, rather than just trying to speculate how  
11 much time they spend in any location, we can  
12 actually take a personal sample and say we know what  
13 they were truly, truly exposed to rather than  
14 guessing how much time they spent some place.

15 And what I would say is since the Mattson  
16 study and this study both show that the smoking  
17 sections had approximately the same concentration of  
18 nicotine, the Mattson study is a representative  
19 study and they are in the range and so that the  
20 personal samples from the Mattson study still  
21 represent our best knowledge as to what the personal  
22 exposures of flight attendants are.

23 Q. Doctor, you were involved in this study, is  
24 that correct?

25 A. I was, right. I'm trying to tell you as

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1 someone who assesses people's exposure, how I think  
2 about the best way to do it. We have what we call  
3 in exposure assessment -- I'm putting together a  
4 course in the fall. We start with what we call  
5 direct means of exposure assessment and indirect  
6 means, and direct means are when you actually  
7 measure on somebody what their exposure is, and  
8 indirect is where you might say, well, there are  
9 these different areas of the plane and we'll  
10 estimate how much time they spend in those areas.  
11 And when you have available direct methods, those  
12 are considered superior to indirect methods.

13 And so, I think that's where, if you want to  
14 look at what is the exposure of flight attendants,  
15 we want to use the direct methods or directly  
16 measure what we are after.

17 Q. Doctor, the Nagda study was done after the  
18 Mattson study; we have established that?

19 A. One year later, yes.

20 Q. And we have established that you were  
21 involved in the Nagda study?

22 A. Yes.

23 Q. And we have established that the purpose of  
24 this study was to develop information to be used for  
25 determining health risks from exposures to ETS for

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1 nonsmoking airliner occupants, haven't we?

2 A. Yes.

3 Q. And we established those nonsmoking airline  
4 occupants would include flight attendants?

5 A. Well, the occupants include flight  
6 attendants but I don't think that -- I don't think  
7 that this study is the best study to know what their  
8 exposures were. This study was primarily truly  
9 designed to see what the concentrations were in  
10 sections of the plane and what best reflects that of  
11 passengers rather than flight attendants.

12 Q. Dr. Hammond, when you go from the boundary  
13 section into the middle and remote sections of the  
14 aircraft, the nicotine levels found in the middle  
15 and remote sections were essentially at the limit of  
16 detection, correct?

17 MR. ROSENBLATT: Judge, after the  
18 explanation of the witness, this is basically  
19 irrelevant to the --

20 MR. FURR: May we have a side bar?

21 (Thereupon, counsel and the court reporter  
22 approached the bench, and the following discussion  
23 was held outside the hearing of the jury:)

24 THE COURT: Okay. Objection?

25 MS. ROSENBLATT: The objection is that

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1 this is totally irrelevant to the issue here, that  
2 the issue she explained of the flight attendants --  
3 first of all, she didn't rely and this wasn't part  
4 of her opinion, but they went into this, that they  
5 were wearing personal monitors to indicate how much.

6 This has to do with passengers. And I mean,  
7 if it were two o'clock in the afternoon and we just  
8 didn't care about wasting a few hours -- but this is  
9 not really germane to any issue and it's potentially  
10 confusing and misleading. And she can explain it  
11 and we can go back and forth, and it's already been  
12 covered.

13 MR. FURR: May I?

14 THE COURT: What you are saying is you  
15 took all this data that's in this thing here and you  
16 come up with the result and she says it's unreliable  
17 for the purposes we are talking about, because if  
18 you are talking about the flight attendants'  
19 exposures, which is what we are talking about, that  
20 was individually monitored with carried monitors and  
21 the rest is speculation.

22 Now, where else are you going to go with  
23 this?

24 MR. FURR: Your Honor, what I'm doing  
25 is I'm impeaching her on that testimony. She has

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1 first acknowledged that this is the most  
2 representative, largest and best study of  
3 environmental tobacco smoke on airliners. She has  
4 acknowledged that the purpose of this study was to  
5 assess those levels for purposes of evaluating the  
6 impact of those levels on the flight attendants'  
7 health.

8 THE COURT: That doesn't cut it. If  
9 what you are talking about is a study in which they  
10 carried individual monitors and this one is of a  
11 general nature in which the results affected  
12 passengers and there is no way of detecting what it  
13 is other than speculation --

14 MR. WHITING: Your Honor, there has  
15 been all kinds --

16 THE COURT: You are talking about  
17 nicotine, besides which nicotine isn't what we're  
18 talking about in this case. Nicotine isn't a  
19 carcinogen.

20 MR. FURR: Your Honor, that's what she  
21 talked about with respect to the Mattson study.

22 THE COURT: Let's suppose the nicotine  
23 levels were extremely high or low. What difference  
24 does it make? When everyone had testified nicotine  
25 doesn't cause cancer and it doesn't cause emphysema,

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1 now what?

2 MR. FURR: The reason that we use  
3 nicotine in RSP and Dr. Hammond uses nicotine in RSP  
4 is that those are what is known as markers of  
5 exposure.

6 THE COURT: Markers. So, they are  
7 exposed, but how do you relate that to the  
8 carcinogen? If they say they have got these little  
9 tags on there to tell --

10 MR. WHITING: Your Honor, there have  
11 been contradictory testimony from plaintiffs'  
12 experts. You heard Dr. Staples testify yesterday  
13 that he didn't believe measuring a single  
14 constituent was an accurate way to measure exposures  
15 in terms of risk. And because what we have heard is  
16 plaintiffs' testimony doesn't mean that there won't  
17 be substantial evidence in this case about the  
18 appropriateness of using nicotine, about the  
19 appropriateness of using these kinds of studies.

20 THE COURT: So, bottom line is you are  
21 going to come up with a whole set of figures that  
22 she is going to say are inaccurate or at least don't  
23 apply. Let's get to it. But I don't want to waste  
24 a lot of time with this. I mean, that's your  
25 position. You have all these calculations. She is

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1 going to say no, it's not either accurate or  
2 relative or material.

3 MR. FURR: She is not going to say they  
4 are not accurate, Your Honor.

5 THE COURT: So, they are not material  
6 or relevant. If that's not her position, you come  
7 out with another witness and show that it is. She  
8 is not going to change her mind.

9 MR. FURR: No, but I would like to  
10 establish that there are facts from studies that she  
11 was involved with that are contrary to the opinions  
12 that she is expressing.

13 THE COURT: Facts, what facts?

14 MR. FURR: The facts that they are  
15 talking about here. The levels of ETS markers that  
16 are present in different sections of the aircraft.

17 THE COURT: She's explained it and said  
18 those things are different than the other one  
19 because you can't really tell what those levels are.  
20 It's really speculation unless you have some sort of  
21 an instrument which is going to actually test it.

22 MR. FURR: You want me to go to the  
23 bottom to line? I'll try to go to the bottom line.

24 THE COURT: Yes.

25 (Thereupon, the following proceedings were  
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1 held within the hearing of the jury:)

2 BY MR. FURR:

3 Q. Dr. Hammond, let's try to go to the bottom  
4 line on this topic.

5 A. Which is the exposure of flight attendants?

6 Q. Yes. Dr. Hammond, it's true, isn't it, that  
7 flight attendant exposures in the nonsmoking  
8 sections of the aircraft are trivial compared to  
9 their exposures in the smoking sections of the  
10 aircraft?

11 A. Flight attendants who were assigned to the  
12 nonsmoking sections of aircraft had the same  
13 exposures basically as flight attendants assigned to  
14 smoking sections. You have to take the entire  
15 exposure of flight attendants, you know, and our  
16 measurements show there really wasn't a difference.

17 Q. Dr. Hammond, could you turn to Page 197 of  
18 your deposition, please?

19 A. Yes.

20 Q. You have to go back to Page 196 to put this  
21 in context. Would you take a look at 197 and I'll  
22 ask you a question about it.

23 A. Yes.

24 Q. On those pages, I was asking you a question  
25 as to the affect of the fresh air and recirculation

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1 of air on flight attendants' ETS exposures, wasn't  
2 I?

3 A. I misunderstood you.

4 Q. We can begin with Page 196. The first  
5 question was, "And so, did these data indicate that  
6 typically flights or I should say exposures on  
7 flights with one hundred percent fresh air would be  
8 lower than exposures on flights with recirculated  
9 air, at least for gas phase constituents"; do you  
10 see that?

11 A. Yes.

12 Q. And then there was some discussion and you  
13 continued to answer that question on the next page?

14 A. Yes. The very first thing I said, and I  
15 said this earlier today, was that we specifically  
16 looked at that, and for flight attendants there was  
17 no difference for whether or not there was  
18 recirculated air or one hundred percent fresh air  
19 because of the nature of their job.

20 Q. Okay. And didn't you also say on Page 197  
21 Dr. Hammond, that, "I think that goes back to the  
22 near field/far field discussion we had earlier  
23 today; that the exposures, the principal effect of  
24 fresh air and recirculated air occurs in the  
25 nonsmoking sections of the plane, and when

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1 recirculated air in the nonsmoking section of a  
2 plane may get more ETS than when you have one  
3 hundred percent fresh air, but for flight attendants  
4 the exposures that they receive when they are in the  
5 nonsmoking section of the plane is trivial compared  
6 to the exposure they get when they are in the near  
7 field of the smoking section, and I think that the  
8 smoking section is less affected by whether it's  
9 fresh air or recirculated air."

10 Was that your answer?

11 A. That was my answer, but I think it's a  
12 little out of context here. Let me try to make this  
13 clear.

14 This is the plane, okay? At this far end of  
15 the plane is where the smoking happens, and here's  
16 where the nonsmoking happens. What I'm saying is  
17 that to really understand -- if you just were to  
18 look at the nonsmoking end, you don't have much  
19 exposure. Most of the exposure that they get  
20 happens in the smoking section.

21 And if you did an extraordinarily detailed  
22 time motion study, you might be able to predict --  
23 and sometimes those have been done and have not been  
24 successful, but you might be able to predict  
25 people's exposure based on area measurements.

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1           However, all of industrial hygiene, all of  
2 the exposure assessment has said you are better off,  
3 particularly for people moving around a lot, which  
4 certainly flight attendants are doing with personal  
5 samples.

6           So, the real point is that what I was saying  
7 is that the predominant contributor to the exposure  
8 of flight attendants is through the smoking section.  
9 And whether you are adding zero or .1 or .2 to a  
10 substantial exposure over here really isn't going to  
11 change the total.

12           It's kind of like if you have ten dollars  
13 and when you add one cent or two cents, you don't  
14 change really how much money you have. And so,  
15 maybe you have one cent if you are in a fresh air  
16 and two cents if you are at the other end.

17           The real point is that's the explanation of  
18 trying to understand the data as the data came  
19 through. But basically what I tried to do is look  
20 at the data. What really does the data tell me as a  
21 scientist having measured in the best way I know how  
22 to measure flight attendants' exposure, and it tells  
23 me there is substantial exposure and that it happens  
24 whether or not they are assigned to smoking or  
25 nonsmoking. It happens whether or not they are in

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1 recirculated or one hundred percent fresh air. They  
2 are not protected by the fresh air because most of  
3 their exposure happens elsewhere.

4 Passengers may be a different story, but we  
5 are talking flight attendants.

6 Q. Okay. And in a word, the flight attendants'  
7 exposures outside of the smoking section are trivial  
8 compared to the exposures inside the smoking  
9 section?

10 A. That's my interpretation of the data.

11 Q. Okay.

12 A. The data doesn't totally tell me that, but  
13 that's my interpretation of the data. But the data  
14 tells me the exposure is substantial and happens  
15 regardless of where they are assigned or the type of  
16 plane.

17 Q. Dr. Hammond, earlier today you looked at a  
18 reproduction of a slide that you use in your OSHA  
19 testimony.

20 A. Yes.

21 Q. I want to show you another. I guess it will  
22 come as no surprise because it's been open for a  
23 while, hasn't it?

24 A. Yes. It's funny to see your work blown up.

25 MR. FURR: Mark this, please.

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1 THE COURT: For I.D.?

2 MR. FURR: Yes, for I.D.

3 THE CLERK: Defendant's Exhibit G for

4 I.D.

5 BY MR. FURR:

6 Q. Dr. Hammond, if you would take a look at  
7 what's been marked as Defendants' G for I.D. and  
8 tell us whether that's a copy of a slide that you  
9 presented in your OSHA testimony.

10 Take a look at this blowup and tell me  
11 whether this is an accurate reproduction.

12 A. Looks pretty similar to me.

13 Q. This is a chart that contains some  
14 descriptions of measurements of environmental  
15 tobacco smoke that have been made in various  
16 environments, is that correct?

17 A. Yes.

18 Q. And all of the data that are represented on  
19 this chart are data that you personally have  
20 collected, aren't they?

21 A. Either I personally collected or they were  
22 collected under my supervision. They are part of  
23 projects on which I was directing.

24 Q. On the right-hand side of the chart there is  
25 a legend over here that has the word median, 75th

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1 percentile and 25th?

2 A. Yes.

3 Q. Would you explain what a median is?

4 A. Median is concentration or level at which  
5 half the values fall below it and half the values  
6 fall above it. So, it's the middle value, middle  
7 value.

8 Q. Would you also explain to the jury what the  
9 75th percentile and 25th percentile are?

10 A. So, the 25th percentile is the level at  
11 which one quarter of the samples fall below and  
12 three quarters above. And the 75 percent would be  
13 the level at which three quarters fall below and one  
14 quarter fall above.

15 The advantage of presenting the data that  
16 way, it looks kind of complicated but often people  
17 only tell you the average for a number but  
18 sometimes, if there's like a wide range, you really  
19 can't understand what is going on. So, this  
20 actually presents far more information to the  
21 reader. You can use the data in a lot more ways,  
22 and I actually like to do that where possible.

23 Q. Okay. And the information on this chart can  
24 be used to compare the exposures of people to  
25 environmental tobacco smoke in different

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1 environments, can't it?

2 A. Yes.

3 Q. This last column contains a description of  
4 some data related to flight attendants, is that  
5 correct?

6 A. That last column is the data that we have  
7 been talking about for the Mattson study, the  
8 personal samples on the flight attendants, and  
9 represents their exposures in spring of 1988 and, of  
10 course, should only be understood in that context.  
11 The past exposures clearly were substantially higher  
12 than that but represents the measured exposure that  
13 we did take in '88.

14 Q. It can only represent the exposures that  
15 were measured in that study?

16 A. That's exactly what this is measuring.  
17 There is no estimate of changes, but one should bear  
18 in mind that as you go back in the past, the  
19 exposures would have been substantially higher.

20 Q. And the same thing with respect to all of  
21 the other measurements for other environments?

22 A. No, no. I actually disagree with that.  
23 That, I think, has not changed nearly as much. I  
24 think, see -- let's see. Virtually most of these  
25 measurements were made in the 1980s, about the same

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1 time period. And if you look at home exposures, I  
2 don't think by the late eighties that had changed.  
3 People's habits of smoking in the homes, in the  
4 homes where smoking was happening, were not any  
5 different than they had been before.

6 And I think this is an important thing when  
7 you try to look back at exposures. You can't just  
8 make a blanket statement, oh, everything was twice  
9 as higher, five times as higher in the past. You  
10 have to take each example and look at them.

11 So, I would say homes, where people smoke in  
12 their homes, had not changed in the late eighties  
13 from 20 years before, 30 years before. But  
14 airplanes, we have a reason they have changed  
15 because there are far fewer smokers on board the  
16 planes. So, therefore, with fewer cigarettes being  
17 smoked -- you could imagine your living room if you  
18 have 3 people or 15 people smoking, you are going to  
19 have a different concentration.

20 Q. Now, by the eighties, the exposures in open  
21 offices had also changed substantially from earlier  
22 time periods, haven't they?

23 A. That particular data set that you are  
24 looking at is specifically open offices where  
25 smoking was allowed. Now, one of the major changes

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1 -- there are two changes that we would say in an  
2 office setting if you were trying to look at office  
3 exposure. One is the late eighties there were more  
4 places that were not allowing or restricting  
5 smoking, so that would lower it, but that would not  
6 affect this slide because I restricted the data  
7 analysis to where smoking was allowed.

8 Secondly, there are smaller percentage of  
9 people smoking, so that would affect that.

10 Q. So, that factor, the fact of there being a  
11 smaller percentage of people smoking that would have  
12 affected the flight attendants' exposures would also  
13 have affected the levels in open offices?

14 A. Right. Probably to differing degrees.

15 Q. Now, the median for the flight attendant  
16 exposure in your data was about four micrograms per  
17 cubic meter, is that correct?

18 A. It's a little higher.

19 Q. Little higher than four?

20 A. Yes.

21 Q. And the median for open offices was a little  
22 higher than nine micrograms per cubic meter, is that  
23 correct?

24 A. Yes. What I would like to say, though, the  
25 main point of this slide is to compare -- I was

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1 trying to compare different work places but to areas  
2 where we know that there's an adverse health effect  
3 from smoking, which is the homes. So, almost all  
4 the epidemiologic data is based on the exposures of  
5 people who were married to smokers, themselves  
6 nonsmokers, but if you are married to smokers.

7 So, that's actually that second bar, and  
8 that's really the most relevant bar to compare it to  
9 because that's where we know this level of exposure  
10 we know has an adverse health effect.

11 Now, mind you even that second bar compared  
12 to the first bar, that's where the comparison has  
13 been made. Not to people not exposed to ETS but  
14 rather to people who have lower exposures of ETS,  
15 people not married to smokers.

16 So, it's that ratio between the second bar  
17 and first bar that we know there's increased rates  
18 of lung cancer, we know there's increased rates of  
19 heart disease, we know that children who were in  
20 homes in those levels have various respiratory  
21 diseases.

22 So, that's the level that I look at when I  
23 want to say how does the exposure of flight  
24 attendants compare to areas where we know there are  
25 adverse health effects.

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1 Q. Doctor, you included measurements for  
2 offices open in the chart, don't you?

3 A. This was a chart that I was -- this is not  
4 the chart I would have prepared, and I did not  
5 prepare it for this trial because I was preparing  
6 this for OSHA. The question at OSHA, you will  
7 recall, was is there a hazard in the workplace where  
8 smoking is allowed. That was the question being  
9 asked, and I was trying to answer with this graph.

10 Q. And at OSHA, one of the things you did was  
11 compare exposures in open offices to that of flight  
12 attendants?

13 A. I don't believe I did.

14 Q. Isn't that what this table does?

15 A. No. What I was doing was compare several  
16 different work situations to that second bar, so I  
17 was saying how do shop workers -- these were people  
18 who were printers at newspapers, fire fighters --  
19 how do people who were working outside of offices  
20 but workers, how were their exposures compared to  
21 people who were married to smokers; how do people in  
22 open offices compare to smokers; and how do flight  
23 attendants compare to smokers.

24 So, each of those is comparing -- not  
25 smokers. I'm sorry. How do they compare to those

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1 nonsmokers for whom we know there are adverse health  
2 effects, which is that second bar.

3 Q. And in addition to being compared to the  
4 second bar, they can also be used to compare  
5 exposures to each other?

6 A. You can do that, yes.

7 Q. And the median nicotine level in open  
8 offices was about nine micrograms per cubic meter,  
9 is that correct?

10 A. Yes.

11 Q. And that's about twice as high as the median  
12 level from the Mattson study for flight attendants,  
13 is that correct?

14 A. Yes.

15 Q. And in fact, the 75th percentile for flight  
16 attendants was below the median for open offices, is  
17 that correct?

18 A. Yes. But see, we don't have -- well,  
19 actually we do have data -- we do have data if you  
20 want to look at it. We do have data, a limited  
21 amount of data on lung cancer in the workplace, and  
22 there definitely is an association between those who  
23 were exposed at work and getting increased rates of  
24 lung cancer. And that was not restricted to  
25 offices. You would have to include shops, but

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1 people who were at work exposed to ETS who have a  
2 higher rate of lung cancer.

3 Q. Okay. Dr. Hammond --

4 A. But I do think that the most appropriate  
5 comparison -- we have much more data. It's much  
6 stronger on the second bar.

7 Q. Well, let's talk about the second bar. The  
8 median nicotine in the homes of being married to a  
9 smoker was about three micrograms per cubic meter,  
10 is that correct?

11 A. No. Those are personal samples. It's not  
12 the homes. The home of smokers, that relates to the  
13 third and fourth bar.

14 Q. I understand. These are personal --

15 A. That's a personal sampling. So, that's a  
16 sample that a person wore. The men and women in  
17 that study actually wore a little sample that I  
18 developed, a little lightweight one. They wore that  
19 for a whole week, and that's the result of doing  
20 that.

21 Q. The flight attendant samples were personal  
22 sample measurements?

23 A. Right.

24 Q. And these are four to five hour averages?

25 A. Yes.

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1 Q. And these were averages for a whole week?

2 A. Right, or 24 hours a day.

3 Q. 24 hours a day times 7 would be about what,  
4 168 hours, something like that?

5 A. Yes. There's 168 hours a week, yes. I  
6 don't understand your point.

7 Q. Well, we'll get to it, I hope.

8 If one assumes that the average respiratory  
9 rates of flight attendants are the same as the  
10 average respiratory rates of the spouses who lived  
11 in a home in which a smoker lives, doesn't this  
12 table show you that, on a cumulative basis, that a  
13 flight attendant -- if flight attendants worked 20  
14 hours a week, that the cumulative exposures to  
15 nicotine for being married to a smoker would be  
16 about five times that of a flight attendant on a  
17 weekly basis?

18 A. Well, first of all, I'd say I wouldn't make  
19 the assumption you made.

20 Q. But making that assumption --

21 MR. ROSENBLATT: Let her finish her  
22 answer, please.

23 A. What I would say is it's very important to  
24 think about this second bar as a bar that tells us  
25 where there's a hazard, a clearly identifiable,

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1 observable in an epidemiologic study hazard.

2 Now, whenever we identify a hazard, if we  
3 are going to then take that information, okay, this  
4 causes cancer at this level, we are always very,  
5 very careful to make sure that you would want to  
6 keep everybody from being exposed anywhere near that  
7 level. You would want to be at least a tenth below  
8 that and much lower. You know this is hazardous,  
9 this causes cancer, you want to go way below that,  
10 right?

11 So, in terms of looking at -- we are not  
12 looking at is there a difference between seven and  
13 eight or ten or five. We are talking about are we  
14 anywhere in the vicinity. And the way I read this  
15 is we are talking about an exposure to a carcinogen  
16 where there is no known threshold and we are in the  
17 ballpark of the same exposure.

18 Q. Dr. Hammond, you had your deposition taken  
19 again this morning, didn't you?

20 A. Yes.

21 Q. And you were asked the same question that I  
22 just asked you a moment ago, weren't you?

23 A. Yes.

24 Q. And this morning your answer was --

25 A. Years ago.

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1 Q. -- the cumulative --

2 MS. ROSENBLATT: What page are you on?

3 MR. FURR: Well, 23, I believe. 23 on  
4 this copy. I don't have the numbered copy yet.

5 BY MR. FURR:

6 Q. Your answer was, "The cumulative exposure of  
7 flight attendants" --

8 MS. ROSENBLATT: What question? What  
9 is the question?

10 THE COURT: She may have a different  
11 page than you do.

12 BY MR. FURR:

13 Q. "The cumulative exposure of flight  
14 attendants is approximately one-fifth of being  
15 married to a smoker as you stated."

16 That was your testimony this morning, wasn't  
17 it?

18 A. I don't have my deposition.

19 THE COURT: Why don't you show it to  
20 her, please?

21 THE WITNESS: I probably said something  
22 like that. That doesn't sound -- I mean, you know,  
23 let us grant that for a minute, sure, if this is a  
24 cumulative exposure.

25 MR. FURR: Yes.

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1 THE WITNESS: Yes, okay. If the  
2 cumulative exposure is one-fifth of that of being  
3 married to -- that is on average. Now, it's very  
4 important to realize that people are not averages,  
5 that some people have higher levels of exposure,  
6 some people get less exposure.

7 And so, within that we are talking about  
8 clearly overlapping exposures. It's very clear,  
9 even from that chart, that even if you took your  
10 highest ends of exposures are going to put you in  
11 the realm of exposures of these people. So, the  
12 real question isn't is their risk identical or  
13 exactly the same. It's just are they at risk. And  
14 I think it's pretty clear that when we are talking  
15 about a carcinogen with no known threshold and we  
16 are talking about exposures that are not terribly,  
17 terribly different in this case -- you know, as I  
18 said, any time you do a recognition of a level that  
19 causes disease, causes cancer, you reduce the  
20 person's exposures to at least a tenth and often one  
21 one-hundredth of the identifiable levels, most  
22 definitely within that realm.

23 BY MR. FURR:

24 Q. Dr. Hammond, you talked about cigarette  
25 equivalents this morning, do you recall that?

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1 A. Yes.

2 Q. Cigarette equivalents based on nicotine can  
3 be calculated using measurements of nicotine in the  
4 environment that you are interested in, can't they?

5 A. Yes.

6 Q. Would you explain to the jury how you  
7 calculate your NDMA cigarette equivalents?

8 A. When I'm going to calculate a cigarette  
9 equivalent for any chemical, what I do is, because  
10 we are saying how much is breathing in this air  
11 equal to how many cigarettes for each chemical as  
12 much as getting from another chemical, NDMA.

13 So, what I would do is say how much air do  
14 you breathe in in this time period? In some cases  
15 it's while you are in a smoky bar for two hours.  
16 Sometimes it's while you are in a restaurant.  
17 Sometimes it's while you are at work for eight  
18 hours. And I would say I would make an estimate in  
19 the particular location of the breathing rate. I  
20 would take the period of times when you say how much  
21 air, how big a hunk of air do you breathe in. So,  
22 that's one piece of the equation.

23 Then I say what is the concentration of  
24 nicotine in the air as a measure of concentration of  
25 environmental tobacco smoke, and then we look at the

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1 ratio -- the emissions from a cigarette on each of  
2 the compounds you are interested in.

3 So, you look at how much is emitted in  
4 mainstream smoke, that's the smoke the smoker  
5 inhales directly into their lungs compared to what  
6 smolders off the end of a cigarette.

7 So, if, for instance, you get ten times more  
8 coming off the end of a cigarette, then that ratio  
9 would be ten to one.

10 Q. Okay. The nicotine cigarette equivalents  
11 are based on measurements of nicotine in the  
12 environment, is that correct?

13 A. It doesn't matter -- to do cigarette  
14 equivalents this way, you don't have to measure the  
15 compound of it. The whole point of this is how to  
16 use a measurement to extrapolate to other compounds.

17 Q. The NDMA -- let me write that down. The  
18 NDMA cigarette equivalent that you have been talking  
19 about today is not based on measurements of NDMA in  
20 environmental tobacco smoke in aircraft, is it?

21 A. Actually, I have been talking about not only  
22 cigarette equivalents for NDMA but also -- I don't  
23 know if you want to write it down -- 4-ABP.  
24 Remember that was the blood measurement, so I have  
25 been doing a few different compounds.

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1           So, yes, what I have been -- in trying to  
2 understand, thinking that cigarette equivalents tend  
3 to be misleading, but if they are going to be used,  
4 we'll try to use them a little more fully. I have  
5 used NDMA as one example of a carcinogen in tobacco  
6 smoke and tried to say, okay -- in fact, what I say  
7 is, for instance, it may be true in a plane or in a  
8 particular work setting that you get as much  
9 nicotine as if you smoked a tenth of a cigarette,  
10 but at the same time you would get as much of this  
11 NDMA, same time, same room, you would get as much of  
12 this carcinogen, which is one of the most potent  
13 animal carcinogens there is, as if you smoked ten  
14 cigarettes.

15           So, it's very important people be aware of  
16 that, how misleading that can be.

17       Q.    I'm trying to make sure I understand how you  
18 calculate those type of cigarette equivalents.

19       A.    I mean, if you would like, I can go to the  
20 board and try to write out an equation for you. I  
21 actually wrote the equation out, and I think you  
22 have seen it. I don't know if the people really  
23 want to.

24           THE COURT: If you need to.

25           THE WITNESS: I don't know. I can do

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1 it. I don't need it, but if you would like me to,  
2 if it would help you, I can do it.

3 BY MR. FURR:

4 Q. Try to answer this question: In calculating  
5 NDMA cigarette equivalents, you take a nicotine  
6 cigarette equivalent and you multiply it by the  
7 sidestream to mainstream ratio for NDMA compared to  
8 the sidestream to mainstream ratio for nicotine, is  
9 that correct?

10 A. That's actually the steps by which I do it,  
11 but I suppose that might be another equivalent way  
12 to do it.

13 Q. The higher the sidestream to mainstream  
14 ratio is for a constituent, the higher the number of  
15 cigarette equivalents that will be calculated, is  
16 that correct?

17 A. Yes. Basically what you are saying is the  
18 more stuff that comes out in the air compared to how  
19 much goes into the smoker's lungs, of course, that's  
20 going to be true, yes. That means the passive  
21 smoking exposure is, in fact, higher to that  
22 chemical compared to that smoker's exposure.

23 Q. You told us earlier you were on the  
24 Scientific Advisory Board to the Environmental  
25 Protection Agency in its review of environmental

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1 tobacco smoke, is that correct?

2 A. Yes.

3 Q. Were you on the Scientific Advisory Board or  
4 were you a consultant?

5 A. I was a consultant.

6 Q. I'd like to ask you to take a look at a page  
7 from the Environmental Protection Agency's report  
8 that I believe is in evidence already.

9 Dr. Hammond, I want you to take a look at  
10 table 3-1. It's on Pages 3-5 through 3-6?

11 A. I'm sorry.

12 Q. Table 3-1 on Page 3-5 through 3-6.

13 A. This, actually, is not how I like to do  
14 this.

15 Q. But it's a way that you have done it, isn't  
16 it?

17 A. No.

18 Q. Let me ask this question. This is a table  
19 that was in the Environmental Protection Agency's  
20 report that is titled, "Distribution of Constituents  
21 in Fresh and Diluted Mainstream Smoke and Diluted  
22 Sidestream Smoke," is that right?

23 A. Yes. It continues, "From Non-filtered  
24 Cigarettes."

25 Q. And it contains a table consisting of two

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1 pages, is that correct?

2 A. Yes.

3 Q. And on the table, there is a listing of the  
4 ratio or range from sidestream smoke to mainstream  
5 smoke, is that right?

6 A. Yes.

7 Q. And there are about 52 constituents or so  
8 listed on these two pages.

9 A. Yes. I take your word for it. I didn't  
10 count.

11 Q. And the range or ratio for NDMA is the  
12 highest ratio listed out of 52 constituents, is that  
13 correct?

14 A. Yes.

15 Q. Now, if we could turn to Page 3.6 or 3-6,  
16 there are a group of ratios for the sidestream smoke  
17 to mainstream smoke for particulate phase  
18 constituents, is that correct?

19 A. Yes.

20 Q. For instance, there's a range for NNN. Do  
21 you see that one?

22 Is that N-nitrosornicotine?

23 A. Yes.

24 Q. And the range for NNN -- let me back up.

25 NNS is N-nitrosamine, isn't it?

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1 A. Yes.

2 Q. And it's one of those carcinogens that might  
3 be of interest?

4 A. Yes.

5 Q. And if one were to calculate a cigarette  
6 equivalent using NNN, you would get about the same  
7 answer that would be obtained using nicotine?

8 A. It would be about twice as high, I think.

9 Q. Dr. Hammond, isn't the range listed on 3-6  
10 0.5 to 3?

11 A. Yes.

12 Q. And the range listed for nicotine at the top  
13 of the page is 2.6 to 3.3, isn't it?

14 A. But that's particle matter. That's particle  
15 matter. That's a different story.

16 Q. Now, the range for NNK is one to four, do  
17 you see that?

18 A. Yes.

19 Q. And so, using NNK, you would get about the  
20 same cigarette equivalent as you would using  
21 nicotine, wouldn't you?

22 A. Yes.

23 Q. And NNK is one of those carcinogens that you  
24 would be interested in, isn't it?

25 A. Sure. I think I'm interested in all  
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1 carcinogens, actually. I mean, I'd be interested --

2 Q. Go ahead. I'm sorry.

3 A. I'd also be interested in the  
4 4-aminobiphenyl where the range is 31 or  
5 2-naphtylamine where the range is 30, and those are  
6 among the handful, just a handful of about 15  
7 absolutely identified human carcinogens that there  
8 are that everybody agrees. There are very, very few  
9 and those are two of them. These are definite human  
10 carcinogens.

11 Q. And the NDMA which you chose to use to  
12 calculate cigarette equivalents for flight  
13 attendants yields the absolute highest number of  
14 cigarette equivalents out of any of these  
15 constituents, doesn't it?

16 A. It's one of the compounds I use, by the way,  
17 and I use it -- yes. The answer is yes, and the  
18 reason I use it is because, A, it's potent, it's  
19 really a very potent carcinogen, and it shows the  
20 range that you can get looking at true carcinogens.

21 Q. With respect to these concentration of  
22 constituents in sidestream smoke, that concentration  
23 dilutes greatly as the sidestream smoke ages and  
24 becomes environmental tobacco smoke, doesn't it?

25 A. Yes. How much it dilutes depends on the

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1 volume in the room. One cigarette smoked in this  
2 room would dilute a lot more than a cigarette smoked  
3 in an airplane cabin. It's very confined.

4 Q. Could I have just a moment, Your Honor?

5 MR. FURR: Dr. Hammond, I hope you make  
6 your plane.

7 THE WITNESS: You do? Thank you.

8 THE COURT: Redirect?

9 All right.

10 REDIRECT EXAMINATION

11 BY MR. ROSENBLATT:

12 Q. Dr. Hammond, Mr. Furr who cross examined you  
13 today also cross examined you at the OSHA hearing,  
14 correct?

15 A. Yes.

16 Q. And another lawyer representing a tobacco  
17 company also cross examined you at the OSHA hearing,  
18 correct?

19 A. Yes.

20 Q. And not for the purpose of agreeing with  
21 you, correct?

22 MR. FURR: Objection.

23 THE COURT: I'm sorry. I didn't hear  
24 the question.

25 BY MR. ROSENBLATT:

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1 Q. They didn't cross examine you at the OSHA  
2 hearing for the purpose of agreeing with you, did  
3 they?

4 A. Well, I think one can make their own  
5 judgment on that.

6 MR. FURR: Objection.

7 THE COURT: Sustained. I'll sustain  
8 the objection.

9 BY MR. ROSENBLATT:

10 Q. Your deposition was taken today?

11 A. Yes.

12 Q. This morning?

13 A. The second deposition.

14 Q. Your first deposition was 314 pages, it  
15 lasted from 9:20 in the morning to 6:30 --

16 MR. FURR: Objection, Your Honor.

17 MR. HARDY: Objection, Your Honor.

18 THE COURT: Okay. Let's move along.

19 BY MR. ROSENBLATT:

20 Q. Okay. Someone named Michael Ogden was  
21 present at both depositions, the deposition that was  
22 taken in May and the deposition that was taken  
23 today.

24 A. Yes.

25 Q. Who is Michael Ogden?

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1 A. He is a chemist that works for R.J.  
2 Reynolds.

3 Q. Have studies in your field established that  
4 being exposed to the secondhand smoke of one smoker  
5 in a household causes disease?

6 A. Yes.

7 Q. Is there any safe level of exposure for  
8 secondhand smoke?

9 A. No.

10 MR. FURR: Objection, Your Honor.  
11 That's beyond the scope of any cross examination.

12 THE COURT: Is that it?

13 MR. ROSENBLATT: If she answers.

14 THE COURT: Are you finished?

15 MR. ROSENBLATT: Assuming you overrule  
16 the objection, I'm finished.

17 THE COURT: I overrule the objection.

18 MR. ROSENBLATT: Finished.

19 THE COURT: All right. You may be  
20 excused. Don't everybody go rushing out. Give this  
21 to the clerk.

22 All right, folks. I have good news and I  
23 have bad news. Tomorrow morning we will have off  
24 and we will not need you folks here until one  
25 o'clock in the afternoon. That's Wednesday. We

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1 will work on Thursday at the regular time. We will  
2 be off on Friday and we will be off on the following  
3 Monday, as I understand it, because of scheduling  
4 problems that we all have.

5 So, that will give you a four-day weekend,  
6 okay? So, cut into your time here.

7 It can't be helped. Under the circumstances  
8 that we are working with, we just can't work around  
9 that schedule, and I figure you folks probably need  
10 the time off.

11 Yes, sir?

12 JUROR NO. 132: I'd like to ask you a  
13 question. If we are off here today at the court, do  
14 we have to report to our jobs?

15 THE COURT: Yes. Unfortunately, that's  
16 the rule or you don't get paid under the rule. So,  
17 there's not much I can do with that. So, for those  
18 of you who are in that position, sorry about it, but  
19 that's just the way it is. I guess you can opt not  
20 to take the money. It's up to you.

21 JUROR NO. 63: Could you repeat that?

22 THE COURT: I said you could probably  
23 opt not to take the pay, you know, and get a payless  
24 day, but that's between you and your boss. I don't  
25 know how it's going to work, but the rules do

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1 provide if you are not here, you should be there.

2 JUROR NO. 63: Okay.

3 THE COURT: That's what the rules say.

4 If you want to get paid, they will pay you and make

5 sure you get paid for the time you are here. But

6 they are not going to pay you for the time you are

7 not here. So, that's up to your boss.

8 JUROR NO. 156: So, tomorrow morning

9 since we have off --

10 THE COURT: That's a half day.

11 JUROR NO. 156: So, do we have to work

12 tomorrow morning?

13 THE COURT: No, you are not working

14 here tomorrow morning.

15 JUROR NO. 156: No, at our jobs.

16 THE COURT: Well --

17 JUROR NO. 63: Is that considered a

18 half day pay?

19 THE COURT: If you work a half day and

20 get half a day pay, that's the way it works. I'm

21 not sure how your boss wants to work that out. You

22 are supposed -- let me tell you the rule is. You

23 are supposed to be there at work if you are not

24 here. I'll leave that up to you. Okay?

25 JUROR NO. 63: Oh, Lord.

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1 THE COURT: I'm telling you what the  
2 rules are, so I just want to let you know we are off  
3 tomorrow morning. We'll be back at one o'clock.  
4 Thursday we'll work all day, usual time, and we'll  
5 be off on Friday and the following Monday and that's  
6 all I can tell you at this point.

7 All right. Meanwhile, please do not watch  
8 T.V., do not read the newspapers, do not talk about  
9 this case from anybody or reach any conclusions.

10 All right. Yes, ma'am?

11 JUROR NO. 290: Second floor at one  
12 o'clock tomorrow?

13 THE COURT: Second floor, yes. Always  
14 when you come in, always to the second floor.

15 (The jury retired from the courtroom.)

16 THE COURT: Okay. Mr. Furr, I  
17 appreciate your accommodating the witness, I really  
18 do.

19 I said I appreciate your accommodating the  
20 witness.

21 All right. Tomorrow at one.

22 MR. MOODHE: Your Honor, before we  
23 adjourn, I have one matter to take up, please.

24 Your Honor, tomorrow Dr. Houston is  
25 scheduled to testify in the afternoon. After the

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1 lunch break, we received today a list of exhibits  
2 for the testimony of Dr. Houston by plaintiffs'  
3 counsel. That list of exhibits basically comprises  
4 of 150 documents.

5 It's clear that the plaintiffs' counsel are  
6 not going to use 150 exhibits with Dr. Houston. In  
7 fact, what has happened on every occasion that  
8 exhibit lists have been exchanged is that plaintiffs  
9 have not used even a fraction of any exhibits that  
10 have been on the list.

11 Now, as Your Honor recalls, we adjusted the  
12 schedule to allow for 24 hours notice of exhibits as  
13 opposed to 48 hours as a reasonable accommodation to  
14 the problems that plaintiffs' counsel were having in  
15 producing witnesses.

16 When we receive a list like this, it really  
17 makes a mockery of the accommodation that we agreed  
18 to and that the court endorsed.

19 Moreover, I have a fundamental problem with  
20 this list as well. Dr. Houston indicated at his  
21 deposition that --

22 THE COURT: You all can be seated.

23 MR. MOODHE: -- that he had only seen a  
24 limited amount of material. In fact, the documents  
25 that we believe he saw were the 42 documents that

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1 plaintiffs' counsel sent to each of their experts.

2 Now, those documents I think we would be  
3 prepared to deal with, but it's absolutely clear  
4 that this witness has not seen the lion's share of  
5 the documents on this exhibit list. This doesn't do  
6 us any good and it's not a fair way of dealing with  
7 the rules we have agreed to operate in preparing for  
8 witness testimony.

9 The plaintiffs' counsel basically designated  
10 any and all documents that relate to CTR.

11 THE COURT: Let me ask you first a  
12 question. Dr. Houston's expertise is what?

13 MR. MOODHE: Dr. Houston is associated  
14 with the AMA and he heads up the preventive medicine  
15 section of the AMA.

16 What these documents really go to -- and we  
17 have a much more fundamental problem, which is why I  
18 bring this up -- these documents really are  
19 documents that in one way or another try to go to  
20 the issue of whether there was suppression or  
21 distortion of research or whether CTR was a public  
22 relations fraud.

23 They are not scientific documents by and  
24 large. There may be a couple of exceptions in here,  
25 but they are basically just documents that discuss

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1 issues, discuss events, discuss people. They don't  
2 require any scientific expertise.

3 And so, the reason I bring this up, Your  
4 Honor, is because we have a very fundamental issue  
5 with this witness in the scope of his testimony  
6 which is is this the stuff of expert testimony to  
7 begin with or is this fact material?

8 Now, I know Your Honor has indicated you  
9 don't like to decide issues in vacuums. When we are  
10 given a list of 150 documents, you are really being  
11 asked to decide that issue in a vacuum.

12 If we know what truly the witness is going  
13 to be talking about and what he has actually seen,  
14 then maybe we can have an intelligent discussion at  
15 the beginning of court tomorrow about whether  
16 Dr. Houston is or is not competent to talk about any  
17 or all of these matters.

18 THE COURT: Yes.

19 MS. ROSENBLATT: Dr. Houston is the  
20 spokesperson -- he's appearing as a spokesperson for  
21 the American Medical Association. He testified  
22 extensively at his deposition about his experience  
23 as the spokesperson and the AMA vis-a-vis the  
24 Council for Tobacco Research, the Tobacco Research  
25 -- its predecessor organization. And I had asked

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1 our associate to put together from our exhibit list  
2 those documents relating to the Council for Tobacco  
3 Research that we're planning to place into evidence  
4 in this case and we're not intending. And again,  
5 you know, more was put together like every annual  
6 report and everything relating to CTR. I have to  
7 myself go through those, which I will as soon as I  
8 get back and later, probably within two hours, I  
9 could limit this substantially.

10 Many of these, most of these are well known  
11 to counsel. They are press releases, public  
12 statements from the Council for Tobacco Research,  
13 they have come up time and again in other matters.  
14 These are not unusual documents. These are the  
15 documents they see over and over again and they are  
16 all on CTR, on the Council for Tobacco Research, but  
17 we are not going to be putting in this many. I was  
18 surprised at the number, and I will limit it  
19 probably substantially.

20 THE COURT: The documents you are  
21 talking about, are they generated by CTR?

22 MS. ROSENBLATT: Yes, for the most  
23 part, or they are documents discussing CTR from the  
24 tobacco companies that discuss the fact that it was  
25 a public relations type move and also discussed the

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1 lawyer involvement in terms of what is going to be  
2 funded, what is not going to be funded, which is the  
3 part of the nature of the testimony based on our  
4 expert disclosure and Dr. Houston's testimony.

5 And as I said, as a practical matter, I  
6 would very much be surprised if we are talking more  
7 than 20 documents total. I just have to go through  
8 this and get rid of quite a few.

9 THE COURT: You can do that either late  
10 tonight or --

11 MS. ROSENBLATT: I'll do that tonight.

12 THE COURT: -- or early tomorrow.

13 MS. ROSENBLATT: I'll do that tonight  
14 and certainly by ten a.m. tomorrow morning I will  
15 have crossed out the majority of these.

16 MR. RUSS: Judge, while she is crossing  
17 out documents, she should cross out all B&W  
18 privileged documents which found their way on that  
19 log. I have looked through, and there are at least  
20 10 that are on our privileged log that are on there  
21 contrary to what they told us they are going to do,  
22 and there are at least 19 of the documents of ours  
23 that are stolen.

24 And there's a further fundamental issue with  
25 respect to the materials Dr. Houston is purported to

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1 have relied upon that we can argue tomorrow. We  
2 don't need to get into all that, but while she is  
3 striking out documents, she needs to pay particular  
4 attention to that issue.

5 THE COURT: Earmark those so you know  
6 where to find them.

7 MS. ROSENBLATT: I'll certainly take  
8 anything out that shouldn't be here in terms of  
9 privileged documents that we either did not have the  
10 privilege removed or we just chose not to -- they  
11 shouldn't be on here, anything in that category.

12 THE COURT: Now, the next question  
13 counsel raised, I think, is as to whether or not  
14 he's testifying as an expert within the field of his  
15 expertise or is he, in truth, a fact witness?

16 MS. ROSENBLATT: Well, he's a public  
17 health official and he's appearing certainly as an  
18 expert. He's board certified in family medicine but  
19 he's also involved in his position with the American  
20 Medical Association where there might be some  
21 overlap in that. But he is going to testify as a  
22 public health official as to his experiences with  
23 the tobacco industry and in that sense -- to me it's  
24 more of an expert across the board.

25 I think it's really an expert because it's

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1 really based upon his expertise, based upon his --  
2 what do you think, Stan?

3 I would say -- I don't even know if there is  
4 any overlap. I would view him solely as an expert.

5 THE COURT: Yes, sir.

6 MR. MOODHE: Your Honor, first, if  
7 Mrs. Rosenblatt is able to pare the list down this  
8 evening, I request that she do that.

9 THE COURT: She could get in touch with  
10 you.

11 MR. MOODHE: Fifteen hours is better  
12 than three hours, to be honest.

13 MS. ROSENBLATT: Give me a number I  
14 could reach you later and I will.

15 MR. MOODHE: Secondly, the reason I  
16 bring up the issue of what Dr. Houston may or may  
17 not be able to testify about, and I can use an  
18 example from the list itself, there is a memorandum  
19 that he did mention in passing during his deposition  
20 testimony which was a memorandum from Leonard Zahn  
21 to two individuals about some activities relating to  
22 the cancellation of a press conference.

23 That is just simple a descriptive memo of  
24 what happened and who said what to whom. It  
25 requires no scientific expertise. It requires no

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1 medical background. It's a document that, if it's  
2 otherwise admissible, any member of this jury could  
3 read and understand. And in fact, if you go to  
4 Dr. Houston's deposition when he describes the  
5 documents, he says one thing, one thing alone: The  
6 documents speak for themselves. That's on Page 304  
7 of his transcript.

8 Now, if the documents speak for themselves,  
9 we don't need an expert to come in here and explain  
10 the documents to the jury. What I worry about, I  
11 think what the court ought to be concerned about is  
12 that this witness is being used as a conduit for  
13 getting in otherwise inadmissible documentary  
14 evidence.

15 If it's admissible, the jury can see it,  
16 they can read it. But if it's inadmissible, just  
17 because this fellow has some credentials and  
18 scientific background doesn't mean that he should be  
19 able to be a conduit to get that information through  
20 the back door to the jury.

21 A fact is a fact. Expert testimony is there  
22 to assist the jurors to understand the facts if they  
23 need that assistance.

24 THE COURT: I'm going to rely upon you  
25 to fill my vacuum so I'll know what I'm talking to

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1 you about and the same with you. Given this  
2 concept, you will have to go through this material  
3 and see which fits and which doesn't, which notes  
4 and which doesn't.

5 MR. HARDY: And we still have an  
6 understanding, then, that I will get the Burns list  
7 in the morning?

8 MS. ROSENBLATT: Sure. I guess I don't  
9 sleep tonight.

10 THE COURT: She needs a couple hours  
11 sleep between now and then.

12 (The proceedings were adjourned at 5:50  
13 p.m.)  
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